

BRIGHAM YOUNG UNIVERSITY BULLETIN



The Graduate School 1962-1963 CATALOG

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Brigham Young University Bulletin



Graduate School Issue

1962-63

Published by

Brigham Young University

Provo, Utah

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University Calendar

1962-63

Although as accurate as possible at the time of the printing of this catalog, the calendar is subject to change at the discretion of the University administration.

First Semester

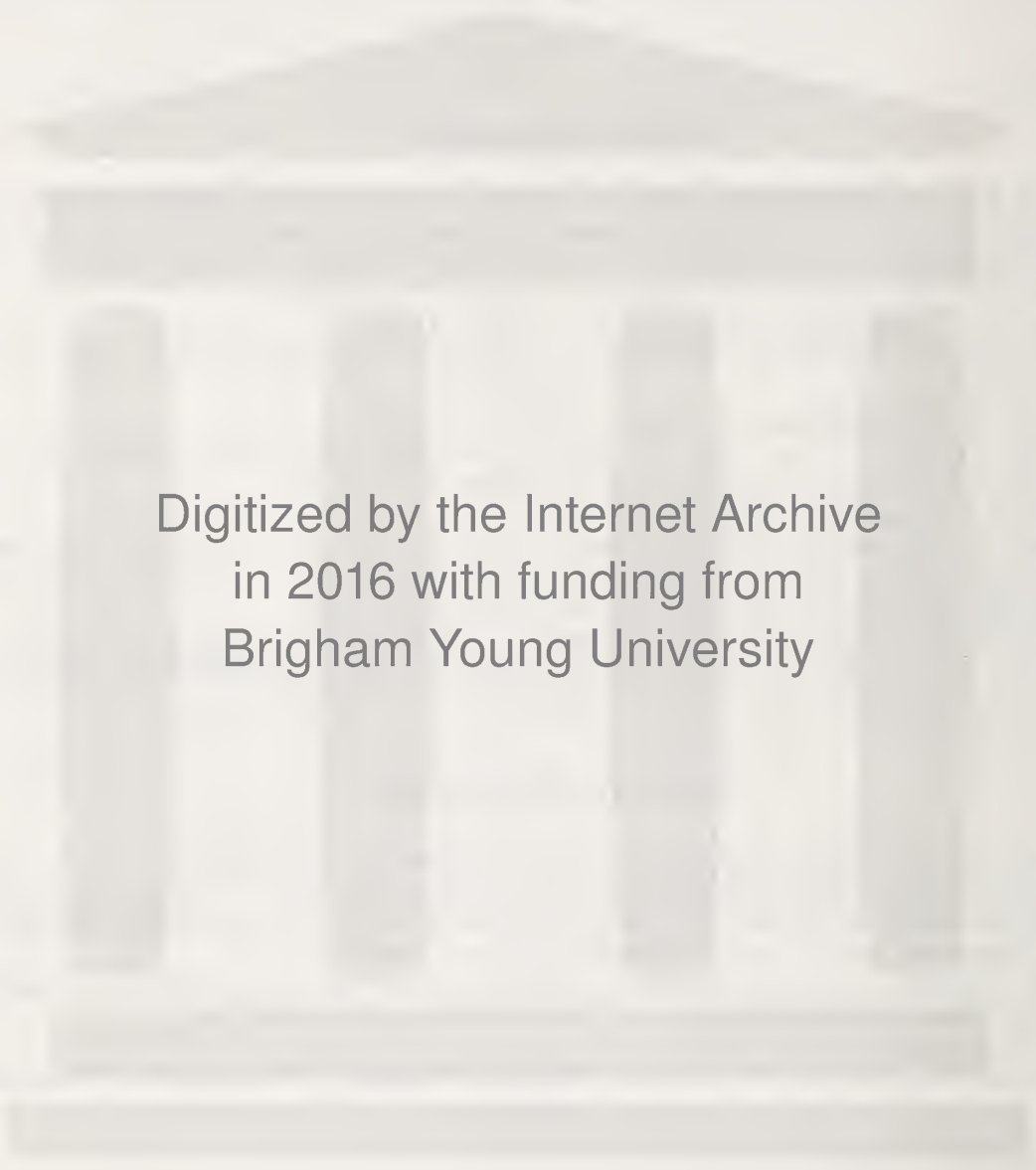
- September 13, 14 (Thursday, Friday):** Utah Conference on Higher Education.
September 15, 16, 17 (Saturday, Sunday, Monday): Student Leadership Conference.
September 17, 18 (Monday, Tuesday): Faculty Workshop.
September 22 (Saturday): New student registration.
September 24, 25 (Monday, Tuesday): Registration for all regular and special students.
September 26 (Wednesday): Class instruction begins.
October 12 (Friday): Last day on which late registration may occur for First Semester and for adding and dropping classes.
November 3 (Saturday): Homecoming.
November 10 (Saturday): Mid-semester registration for courses available to students on special authorization.
November 22, 23 (Thursday, Friday): Thanksgiving recess.
December 20 (Thursday) through January 2 (Wednesday): Christmas recess.
January 26, 28, 29, 30, 31 (Saturday, Monday, Tuesday, Wednesday, Thursday): First Semester examination period.

Second Semester

- February 4, 5 (Monday, Tuesday):** Second Semester registration.
February 6 (Wednesday): Class instruction begins.
February 22 (Friday): Last day on which late registration may occur for Second Semester and for adding and dropping classes.
March 30 (Saturday): Mid-semester registration for courses available to students on special authorization.
May 1 (Wednesday): "Y" Day.
May 25, 27, 28, 29, 30 (Saturday, Monday, Tuesday, Wednesday, Thursday): Examination period for Second Semester.
May 30 (Thursday): Baccalaureate services.
May 31 (Friday): Commencement exercises.

Summer Session, 1963

- June 10-14:** Leadership Week.
June 17 (Monday): Registration.
June 18 (Tuesday): Class instruction begins.
July 4 (Thursday): National holiday observed.
July 19 (Friday): First Term ends.
July 22 (Monday): Second Term begins.
July 24 (Wednesday): State holiday observed.
August 23 (Friday): Second Term ends.
August 23 (Friday): Eighty-eighth summer convocation.



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University Administrative Officers

Members of the Administrative Council

President Ernest L. Wilkinson
 Administrative Assistant John T. Bernhard
 Assistant to the President in Charge of
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 Vice-President William E. Berrett
 Vice-President Earl C. Crockett
 Vice-President in Charge of Auxiliary Services Ben E. Lewis
 Vice-President and General Counsel Clyde D. Sandgren
 Vice-President Harvey L. Taylor
 Comptroller Joseph T. Bentley
 Assistant Administrator of Seminaries and Institutes Dale D. Tingey
 Assistant Administrator of Seminaries and Institutes Alma P. Burton

*Not on Administrative Council.

Graduate School

Dean of the Graduate School Wesley P. Lloyd

Deans of Colleges

Biological and Agricultural Sciences Rudger H. Walker
 Business Weldon J. Taylor
 Education Antone K. Romney

Family Living	Virginia F. Cutler
Fine Arts	Conan E. Mathews
General College	Wayne B. Hales
Humanities and Social Sciences, Acting Dean	Reed H. Bradford
Nursing	Beulah Ream Allen
Physical and Engineering Sciences	Armin J. Hill
Physical Education	Milton F. Hartvigsen
Religious Instruction	David H. Yarn, Jr.

Deans and Directors of General Areas

Admissions and Records	Alma P. Burton
Adult Education and Extension Services	Harold Glen Clark
Dean of Students	Elliott J. Cameron
Director of Research	H. Tracy Hall
Director of Summer School	Dean A. Peterson

Graduate Council

Representatives of Academic Areas

Jay V. Beck, Biological and Agricultural Sciences. Term expires September 1, 1963.
 Robert J. Smith, Business. Term expires September 1, 1963.
 A. John Clarke, Education. Term expires September 1, 1963.
 Kenneth L. Cannon, Family Living. Term expires September 1, 1964.
 Clawson Cannon, Jr., Fine Arts. Term expires September 1, 1963.
 Eugene E. Campbell, Humanities and Social Sciences. Term expires September 1, 1962.
 Lehi F. Hintze, Physical and Engineering Sciences. Term expires September 1, 1964.
 Israel C. Heaton, Physical Education. Term expires September 1, 1964.
 Chauncey C. Riddle, Religious Instruction. Term expires September 1, 1962.

Members at Large

Mark K. Allen. Term expires September 1, 1963.
 Reed H. Bradford. Term expires September 1, 1964.
 John H. Gardner. Term expires September 1, 1962.
 Bertrand F. Harrison. Term expires September 1, 1964.
 H. Tracy Hall, Director of Research.
 Wesley P. Lloyd, Dean, Graduate School, Chairman.

Ex Officio

Earl C. Crockett, Academic Vice-President.
 Lyman Tyler, Director of Libraries.

Chairmen of Departments of Instruction

Accounting	Bryce B. Orton
Agricultural Economics	Ivan L. Corbridge
Agronomy	Raymond Farnsworth
Animal Husbandry	Lawrence Morris
Archaeology	Ross T. Christensen
Art	Richard L. Gunn
Bacteriology	Richard D. Sagers
Bible and Modern Scripture	Howard H. Barron
Biblical Languages	Ellis Rasmussen

Botany	Bertrand F. Harrison
Business Education and Office Management	Richard D. Bell
Business Management	Parley M. Pratt
Chemical Engineering Science	Dee H. Barker
Chemistry	Albert D. Swensen
Civil Engineering Science	Ralph L. Rollins
Dramatic Arts	Harold I. Hansen
Economics	Willard B. Doxey
Electrical Engineering Science	Darrel J. Monson
English	Bruce B. Clark
Food and Nutrition	Marion Bennion
Geography	Robert L. Layton
Geology	Lehi Hintze
Graduate Department of Education	Keith R. Oakes
Health and Safety Education	Ray Watters
History	Eugene E. Campbell
History and Philosophy of Religion	Truman G. Madsen
Horticulture	Ernest F. Reimschuessel
Human Development and Family Relationships	Blaine M. Porter
Industrial Education	Ross J. McArthur
Institute of Government Service, Director	Stewart L. Grow
Journalism	Jean R. Paulson
Languages	H. Darrel Taylor
Library Science	Donald K. Nelson
Mathematics	Harvey J. Fletcher
Mechanical Engineering Science	John N. Cannon
Music	Crawford Gates
Physical Education for Men	David Geddes
Physical Education for Women	Leona Holbrook
Physics	John Hale Gardner
Political Science	Mark W. Cannon
Psychology	Robert J. Howell
Recreation	Israel C. Heaton
Religious Education	Chauncey Riddle
Sociology and Anthropology	Joseph N. Symons
Speech	Morris M. Clinger
Statistics	Howard C. Nielsen
Youth Leadership	Thane Packer
Zoology and Entomology	D Elden Beck

The Faculty of the Graduate School

The faculty of the Graduate School consists of members of the general faculty who are approved by the dean of the Graduate School from among those who hold the rank of professor or associate professor, or assistant professor with a doctoral degree. For special reason related to exceptional qualification, the Graduate Council is authorized to appoint to the Graduate Faculty, a member who does not hold the doctoral degree.

George M. Addy	Assistant Professor of History (1957) B.A., M.A., Brigham Young University, 1948, 1950; Ph.D., Duke University, 1957.
A. Lester Allen	Associate Professor of Zoology (1954) B.A., Ph.D., University of California at Los Angeles, 1946, 1951.

- Mark K. Allen** Professor of Psychology (1946)
B.A., Brigham Young University, 1926; M.A., Ph.D., Stanford University, 1935, 1955.
- Stephen L. Alley** Associate Professor of Educational Philosophy (1956)
B.S., M.S., University of Utah, 1947, 1951; Ed.D. Harvard University, 1958.
- Dorald M. Allred** Assistant Professor of Zoology and Entomology (1956)
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D. University of Utah, 1954.
- R. Chase Allred** Associate Professor of Agronomy (1955)
B.S., Brigham Young University, 1948; M.S., Kansas State College, 1949; Ph.D., University of Nebraska, 1952.
- H. Verlan Andersen** Professor of Accounting (1953)
B.S., Brigham Young University, 1940; LL.B., Stanford University, 1946; LL.M., Harvard University, 1948; C.P.A., State of Arizona, 1943.
- Keith P. Anderson** Professor of Chemistry (1953)
B.A., Brigham Young University, 1946; Ph.D., Cornell University, 1950.
- Richard L. Anderson** Associate Professor of Religion (1955)
B.A., M.A., Brigham Young University, 1951, 1957; LL.B., Harvard University, 1954.
- Vernon L. Anderson** Associate Professor of Modern Languages (1956)
B.A., M.A., University of Utah, 1948, 1949; Ph.D., Stanford University, 1954.
- Hyrum L. Andrus** Associate Professor of Religion (1956)
B.S., Ricks College, 1951; M.S., Brigham Young University, 1952; D.S.S., Syracuse University, 1955.
- J. Roman Andrus** Professor of Art and Education (1943)
B.S., M.S., Brigham Young University, 1942, 1943; Ed.D., University of Colorado, 1958; Art Students League, L.A. Art Institute.
- Clarence D. Ashton** Associate Professor of Horticulture and Horticultural Specialties (1951)
B.S., Brigham Young University, 1929.
- Hyrum J. Babcock** Associate Professor of Education (1954)
B.A., M.A., Ph.D., University of California, 1939, 1940, 1953.
- Milton V. Backman, Jr.** Assistant Professor of History and Philosophy of Religion (1960)
B.S., M.A., University of Utah, 1954, 1955; Ph.D., University of Pennsylvania, 1959.
- Ariel S. Ballif** Professor of Sociology (1938)
B.S., Brigham Young University, 1925; M.A., Ph.D., University of Southern California, 1937, 1945.
- Jae R. Ballif** Assistant Professor of Physics (1962)
B.S., Brigham Young University, 1953; Ph.D., University of California at Los Angeles, 1962.
- Dee H. Barker** Associate Professor of Chemical Engineering (1959)
B.S., Ph.D., University of Utah, 1948, 1951.
- J. Dean Barnett** Assistant Professor of Physics (1958)
B.A., Ph.D., University of Utah, 1954, 1959.
- Owen L. Barnett** Associate Professor of Educational Administration (1950)
B.S., M.S., Brigham Young University, 1923, 1927.
- Howard H. Barron** Associate Professor of Religion (1953)
B.S., M.S., Utah State University, 1943, 1950; Ed.D., University of Utah, 1953.
- Davis Bartholomew** Professor of Electrical Engineering (1954)
B.S., University of Utah, 1928; M.S., University of Minnesota, 1940; P.E.E., University of Utah, 1948.
- Cliff S. Barton** Associate Professor of Civil Engineering (1959)
B.S., Utah State University, 1947; M.S., Ph.D., Rensselaer Polytechnic Institute, 1953, 1958.
- J. LaVar Bateman** Professor of Speech (1949)
B.A., Brigham Young University, 1941; M.S., Ph.D., University of Wisconsin, 1947, 1950.

- Edith Bartholomew Bauer** Associate Professor of Education (1945)
B.A., M.A., Brigham Young University, 1930, 1946; Ph.D., University of California at Berkeley, 1956.
- Leland K. Baxter** Professor of Mechanical Engineering (1953)
B.S., University of New Mexico, 1948; M.S., Ph.D., Purdue University, 1952, 1953.
- D Elden Beck** Professor of Zoology and Entomology (1938)
B.A., M.A., Brigham Young University, 1929, 1930; Ph.D., Iowa State College, 1933.
- Jay V. Beck** Professor of Bacteriology (1951)
B.A., M.A., Brigham Young University, 1933, 1936; Ph.D., University of California at Berkeley, 1940.
- Richard Dermont Bell** Assistant Professor of Business Education
and Office Management (1957)
B.S., M.S., Brigham Young University, 1955, 1956; Ph.D., University of California, 1960.
- B. West Belnap** Professor of Religious Education (1951)
B.S., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1950, 1951.
- Marion Bennion** Associate Professor of Food and Nutrition (1952)
B.S., Utah State University, 1947; M.S., Teachers College, Columbia University, 1949;
Ph.D., University of Wisconsin, 1956.
- Robert C. Bennion** Assistant Professor of Psychology (1961)
B.A., Brigham Young University, 1956; M.A., Ph.D., Ohio State University, 1959, 1961.
- Joseph T. Bentley** Comptroller; Associate Professor of Accounting
B.S., M.S., Brigham Young University, 1928, 1954; C.P.A., State of Utah, 1946.
- John T. Bernhard** Administrative Assistant to the President;
Professor of Political Science
B.S., Utah State University, 1941; M.A., Ph.D., University of California at Los Angeles, 1949, 1951.
- William E. Berrett** Vice-President; Professor of Religion
B.A., LL.B., University of Utah, 1924, 1933.
- Harold J. Bissell** Professor of Geology (1938)
B.S., Brigham Young University, 1934; M.S., Ph.D., University of Iowa, 1936, 1948.
- Angus U. Blackham** Professor of Chemistry (1952)
B.A., Brigham Young University, 1949; M.A., Ph.D., University of Cincinnati, 1950, 1952.
- Reed H. Bradford** Professor of Sociology (1946)
B.A., Brigham Young University, 1937; M.A., Louisiana State University, 1939; M.A.,
Ph.D., Harvard University, 1941, 1946.
- Willard Bradshaw** Assistant Professor of Bacteriology (1961)
B.S., M.S., Brigham Young University, 1952, 1953; Ph.D., University of California, 1957.
- Ralph A. Britsch** Associate Professor of English (1938)
B.A., M.A., Brigham Young University, 1933, 1951.
- H. Smith Broadbent** Professor of Chemistry (1946)
B.S., Brigham Young University, 1942; Ph.D., Iowa State College, 1946.
- Thomas H. Brown** Assistant Professor of Languages (1959)
B.A., Brigham Young University, 1955; M.A., Ph.D., University of Illinois, 1957, 1960.
- Loren C. Bryner** Professor of Chemistry (1935)
B.S., M.S., Brigham Young University, 1928, 1930; Ph.D., Iowa State College, 1934.
- Kenneth C. Bullock** Professor of Geology (1943)
B.S., M.A., Brigham Young University, 1940, 1942; Ph.D., University of Wisconsin, 1949.
- Percy E. Burrup** Professor of Educational Administration (1952)
B.S., M.S., Utah State University, 1932, 1941; Ed.D., Colorado State College of Education, 1951.

- Alma P. Burton** Assistant Administrator of Seminaries and Institutes
Professor of Religion (1948)
B.S., Utah State University, 1948; M.S., Brigham Young University, 1950; Ed.D.,
University of Utah, 1957.
- Jess R. Bushman** Assistant Professor of Geology (1955)
B.A., Brigham Young University, 1949; Ph.D., Princeton University, 1959.
- Richard L. Bushman** Assistant Professor of History (1960)
B.A., Ph.D., Harvard University, 1955, 1961.
- Eliot A. Butler** Associate Professor of Chemistry (1956)
B.S., Ph.D., California Institute of Technology, 1952, 1956.
- Sterling G. Callahan** Professor of Education (1953)
B.A., Brigham Young University, 1937; M.A., George Washington University, 1947;
Ed.D., University of Virginia, 1953.
- Eugene E. Campbell** Professor of History (1956)
B.A., M.A., University of Utah, 1939, 1940; Ph.D., University of Southern California,
1952.
- Jennie Campbell** Associate Professor of Education (1952)
B.S., Brigham Young University, 1928; M.A., Teachers College, Columbia University,
1937.
- Clawson Y. Cannon, Jr.** Assistant Professor of Music (1949)
B.M., Eastman School of Music, University of Rochester, 1948; Diploma, Conserva-
torium Zurich, 1953; B.A., M.A., Brigham Young University, 1954, 1955.
- Clawson Y. Cannon, Sr.** Professor of Animal Husbandry (1956)
B.S., Utah State University, 1913; M.S., Ph.D., Iowa State College, 1924, 1927.
- Kenneth L. Cannon** Professor of Human Development and Family
Relationships (1956)
B.S., Brigham Young University, 1935; M.S., Ph.D., Iowa State College, 1948, 1954.
- Mark W. Cannon** Associate Professor of Political Science (1960)
B.A., University of Utah, 1949; M.P.A., M.A., Ph.D., Harvard University, 1953, 1954,
1961.
- Melvin W. Carter** Associate Professor of Statistics (1961)
B.S., Arizona State University, 1952; M.S., Ph.D., North Carolina State, 1954, 1956.
- Arthur O. Chapman** Associate Professor of Zoology (1959)
B.A., Brigham Young University, 1941; M.A., University of Kansas, 1949; Ph.D.,
University of Nebraska, 1953.
- Thomas E. Cheney** Associate Professor of English (1945)
B.S., Utah State University, 1930; M.A., University of Idaho, 1936.
- Dean C. Christensen** Professor of Education (1957)
B.S., M.S., Utah State University, 1938, 1948; Ed.D., University of Oregon, 1957.
- Earl M. Christensen** Associate Professor of Botany (1949)
B.S., M.S., University of Utah, 1947, 1949; Ph.D., University of Wisconsin, 1954.
- Edward L. Christensen** Professor of Business Education and Office
Management (1953)
B.S., M.S., Ph.D., University of Utah, 1938, 1939, 1953.
- James J. Christensen** Associate Professor of Chemical Engineering (1957)
B.S., M.S., University of Utah, 1953, 1956; Ph.D., Carnegie Institute of Technology,
1957.
- Lillian A. Christensen** Associate Professor of Education (1950)
B.S., University of Utah, 1938; M.S., Brigham Young University, 1957; Ph.D., Western
Reserve University, 1958.
- Parley A. Christensen** Professor of English (1927)
B.S., Utah State University, 1914; M.A., Ph.D., Stanford University, 1925, 1927.
- Ross T. Christensen** Associate Professor of Archaeology (1952)
B.A., M.A., Brigham Young University, 1943, 1947; Ph.D., University of Arizona,
1956.

- John R. Christiansen** Associate Professor of Sociology (1957)
B.S., M.S., Utah State University, 1949, 1952; Ph.D., University of Wisconsin, 1955.
- Bruce B. Clark** Professor of English (1950)
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Utah, 1951.
- David Leigh Clark** Associate Professor of Geology (1959)
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., University of Iowa, 1957.
- Harold Glen Clark** Professor of Education; Dean of Adult Education
and Extension Services (1946)
B.S., Brigham Young University, 1928; M.S., University of Southern California, 1934;
Ed.D., George Washington University, 1942.
- Herald R. Clark** Professor of Finance and Banking (1913)
B.A., Brigham Young University, 1918; M.B.A., University of Washington, 1924.
- J. Reuben Clark, III** Associate Professor of Modern Languages (1941)
B.A., University of Utah, 1934.
- James R. Clark** Associate Professor of Religion (1938)
B.A., M.A., Brigham Young University, 1936, 1944; Ed.D., Utah State University,
1958.
- Marden J. Clark** Associate Professor of English (1949)
B.A., M.A., Brigham Young University, 1948, 1949; Ph.D., University of Washington,
1957.
- Monroe H. Clark** Associate Professor of Philosophy of Education
and Guidance (1945)
B.A., Columbia University, 1923; M.A., Brigham Young University, 1927.
- A. John Clarke** Professor of Educational Administration (1938)
B.S., M.S., Brigham Young University, 1938, 1942; Ed.D., Colorado University, 1950.
- John C. Clegg** Assistant Professor of Electrical Engineering (1961)
B.S., M.S., Ph.D., University of Utah, 1949, 1954, 1957.
- Coran L. Cluff** Assistant Professor of Chemistry (1960)
B.S., Arizona State College, 1952; M.S., Ph.D., University of Michigan, 1955, 1960.
- Lane A. Compton** Associate Professor of Physical Science Education (1953)
B.S., M.S., Ed.D., University of Utah, 1943, 1951, 1955.
- Leslie M. Cooper** Assistant Professor of Psychology
B.S., M.S., Brigham Young University, 1954, 1958; Ph.D., University of Illinois, 1962.
- Ivan L. Corbridge** Associate Professor of Economics (1952)
B.A., Utah State University, 1946; M.S., University of Chicago, 1948; Ph.D., Washing-
ton State College, 1952.
- Lars G. Crandall** Associate Professor of Business Education
and Office Management (1944)
B.S., M.S., Brigham Young University, 1944, 1945; Ed.D., Colorado State Teachers
College, 1960.
- John K. Crnkovic** Assistant Director of the Laboratory Schools for
Curriculum and Teaching; Associate Professor of Education (1957)
B.A., Willamette University, 1930; M.A., University of Michigan, 1940; Ed.D., Ari-
zona State College, 1956.
- Earl C. Crockett** Vice-President; Professor of Economics
B.S., University of Utah, 1927; Ph.D., University of California, 1931.
- Evan M. Croft** Associate Professor of Business Education
and Office Management (1936)
B.S., Brigham Young University, 1929; M.S., University of Southern California, 1940.
- Robert M. Cundick** Assistant Professor of Music (1957)
B.F.A., M.F.A., Ph.D., University of Utah, 1949, 1950, 1955.
- Virginia F. Cutler** Professor of Housing and Home Management and
Dean of the College of Family Living (1961)
B.S., University of Utah, 1926; M.A., Stanford University, 1937; Ph.D., Cornell Uni-
versity, 1936.

- Delva Daines** Associate Professor of Education (1955)
B.S., M.S., Utah State University, 1940, 1947; Ed.D., Washington State University, 1956.
- Philip B. Daniels** Assistant Professor of Psychology (1961)
B.S., M.S., Brigham Young University, 1954, 1957; Ph.D., Harvard University, 1962.
- J. Kenneth Davies** Associate Professor of Economics (1953)
B.S., Marquette University, 1945; M.S., Brigham Young University, 1950; Ph.D., University of Southern California, 1959.
- Edwin Dean** Associate Professor of Mathematics (1949)
B.S., M.S., Brigham Young University, 1947, 1952; M.S., University of Michigan, 1955.
- Daniel Decker** Assistant Professor of Physics (1958)
B.S., M.S., Brigham Young University, 1953, 1955; Ph.D., University of Illinois, 1958.
- Gerrit deJong, Jr.** Professor of Modern Languages; Dean Emeritus, College of Fine Arts (1925)
B.A., M.A., University of Utah, 1920, 1925; Ph.D., Stanford University, 1933.
- William E. Dibble** Assistant Professor of Physics (1961)
B.S., Ph.D., California Technology, 1954, 1960.
- Dwight R. Dixon** Associate Professor of Physics (1959)
B.S., Utah State University, 1942; Ph.D., University of California, 1955.
- David M. Donaldson** Associate Professor of Bacteriology (1959)
B.S., M.S., Ph.D., University of Utah, 1950, 1952, 1954.
- G. Byron Done** Professor of Religion (1956)
B.A., University of Utah, 1928; M.A., Ph.D., University of Southern California, 1937, 1939.
- Lester N. Downing** Professor of Personnel and Guidance (1954)
B.S., M.S., Utah State University, 1947, 1949; Ed.D., Colorado State College of Education, 1951.
- Willard B. Doxey** Assistant Professor of Economics (1956)
B.S., M.S., University of Utah, 1937, 1947; Ph.D., University of California at Berkeley, 1956.
- J. Duane Dudley** Assistant Professor of Physics (1956)
B.S., Brigham Young University, 1952; M.A., Rice Institute, 1953; Ph.D., University of Utah, 1959.
- William G. Dyer** Associate Professor of Sociology (1955)
B.A., M.A., Brigham Young University, 1950, 1952; Ph.D., University of Wisconsin, 1955.
- Don L. Earl** Professor of Music (1955)
B.A., M.A., Brigham Young University, 1940, 1947; Ph.D., Indiana University, 1952.
- E. John Eastmond** Professor of Physics (1951)
B.A., Brigham Young University, 1937; Ph.D., University of California at Berkeley, 1943.
- *Robert L. Egbert** Professor of Educational Psychology (1955)
B.S., M.S., Utah State University, 1947, 1948; Ph.D., Cornell University, 1949.
- Richard Grant Ellsworth** Assistant Professor of English (1958)
B.A., M.A., Brigham Young University, 1951, 1952; Ph.D., University of Maryland, 1958.
- LaMar T. Empey** Associate Professor of Sociology (1955)
B.S., M.S., Brigham Young University, 1951, 1952; Ph.D., State College of Washington, 1955.
- Dean B. Farnsworth** Professor of English (1953)
B.A., M.A., University of Utah, 1946, 1947; Ph.D., University of California at Berkeley, 1950.
- Raymond B. Farnsworth** Professor of Agronomy (1946)
B.S., Brigham Young University, 1937; M.S., Massachusetts State College, 1938; Ph.D., Ohio State University, 1941.

- Lawrence Fearnley** Assistant Professor of Mathematics (1957)
B.S., London University, 1953; Ph.D., University of Utah, 1959.
- D. Allen Firmage** Professor of Engineering (1955)
B.S.C.E., University of Utah, 1940; M.S., Massachusetts Institute of Technology, 1941.
- Royce P. Flandro** Assistant Professor of Education (1953)
B.S., M.S., University of Utah, 1948, 1950; Ed.D., University of Indiana, 1957.
- Harvey Fletcher** Professor of Physics (1952)
B.S., Brigham Young University, 1907; Ph.D., Chicago University, 1911; hon. Sc.D., Columbia University, 1935; hon. Sc.D., Kenyon College, 1942; hon. Sc.D., Stevens Institute of Technology, 1942; hon. Sc.D., Brigham Young University, 1954.
- Harvey J. Fletcher, Jr.** Professor of Mathematics (1953)
B.S., Massachusetts Institute of Technology, 1944; M.S., California Institute of Technology, 1948; Ph.D., University of Utah, 1954.
- Marvin H. Folsom** Assistant Professor of Languages (1960)
B.A., M.A., Brigham Young University, 1951, 1955; Ph.D., Cornell University, 1961.
- Herbert H. Frost** Associate Professor of Zoology (1960)
B.A., M.A., Brigham Young University, 1941, 1947; Ph.D., Cornell University, 1955.
- Dean K. Fuhrman** Professor of Engineering (1954)
B.S., M.S., Utah State University, 1941, 1950; Ph.D., University of Wisconsin, 1952.
- Glen S. Gagon** Assistant Professor of Instruction (1955)
B.S., M.Ed., Brigham Young University, 1951, 1956; Ed.D., Colorado State College, 1960.
- B. Delworth Gardner** Associate Professor of Economics (1959)
B.S., M.S., University of Wyoming, 1952, 1954; Ph.D., University of Chicago, 1960.
- John H. Gardner** Professor of Physics (1949)
B.S., Utah State University, 1943; M.A., Ph.D., Harvard University, 1947, 1950.
- Byron W. Gassman** Assistant Professor of English (1960)
B.A., Brigham Young University, 1955; M.A., Ph.D., University of Chicago, 1956, 1960.
- Crawford Gates** Professor of Music (1948)
B.A., San Jose State College, 1944; M.A., Brigham Young University, 1948; Ph.D., Eastman School of Music, University of Rochester, 1954.
- David D. Geddes** Associate Professor of Physical Education and Health (1952)
B.S., M.S., Brigham Young University, 1950, 1952; Ph.D., University of Southern California, 1959.
- M. Carl Gibson** Assistant Professor of Modern and Classical Languages (1949)
B.A., M.A., Brigham Young University, 1947, 1949; Ph.D., University of Oregon, 1960.
- Lt. Colonel William J. Gibson** Professor of Air Science (1959)
B.S., Utah State University, 1948.
- Preston R. Gledhill** Professor of Speech (1947)
Degré Supérieur, La Sorbonne, 1938; B.A., Brigham Young University, 1939; M.A., Louisiana State University, 1940; Ph.D., University of Wisconsin, 1951.
- J. Rex Goates** Professor of Chemistry (1947)
B.S., Brigham Young University, 1942; Ph.D., University of Wisconsin, 1947.
- A. Harold Goodman** Associate Professor of Music (1960)
B.A., University of Arizona, 1947; M.A., Ed.D., University of Southern California, 1951, 1960.
- Stewart L. Grow** Professor of History and Political Science; Director Institute of Government Service (1947)
B.S., M.S., Brigham Young University, 1935, 1948; Ph.D., University of Utah, 1954.
- Clark J. Gubler** Professor of Chemistry (1958)
B.A., Brigham Young University, 1939; M.A., University of Southern California, 1941; Ph.D., University of California, 1945; Established Investigator of the American Heart Association, 1960.

- Richard L. Gunn** Associate Professor of Art and Education (1948)
B.S., M.S., Brigham Young University, 1947, 1950; Ed.D., Stanford University, 1955.
- LeRoy R. Hafen** Professor of History (1954)
B.A., Brigham Young University, 1916; M.A., University of Utah, 1919; Ph.D., University of California, 1924; Litt.D., University of Colorado, 1935.
- Richard W. Hales** Professor of Physics (1952)
B.S., Iowa State College, 1946; Ph.D., University of California, 1952.
- Wayne B. Hales** Professor of Physics and Mathematics; Dean
of General College (1930)
B.A., Brigham Young University, 1916; M.A., University of Utah, 1922; Ph.D., California Institute of Technology, 1926.
- H. Tracy Hall** Professor of Chemistry, Director of the Research
Division (1955)
B.S., M.S., Ph.D., University of Utah, 1942, 1943, 1948.
- Merrill J. Hallam** Professor of Agronomy (1952)
B.A., Brigham Young University, 1950; Ph.D., Iowa State College, 1952.
- John R. Halliday** Professor of Music (1936)
B.A., M.A., Brigham Young University, 1935, 1936; Ph.D., Eastman School of Music, University of Rochester, 1941.
- George H. Hansen** Professor of Geology and Geography (1927)
B.S., Utah State University, 1918; M.S., Ph.D., George Washington University, 1925, 1927.
- Harold I. Hansen** Professor of Speech (1952)
B.S., Utah State University, 1937; M.A., Ph.D., State University of Iowa, 1940, 1949.
- Terrence L. Hansen** Associate Professor of Languages (1960)
B.A., University of Utah, 1946; M.A., Ph.D., Stanford University, 1948, 1951.
- Kenneth R. Hardy** Associate Professor of Psychology (1954)
B.A., M.A., University of Utah, 1948, 1949; Ph.D., University of Michigan, 1954.
- Callis R. Harms** Assistant Professor of Educational Administration (1960)
B.S., M.Ed., Brigham Young University, 1952, 1956; Ed.D., Arizona State College, 1961.
- James M. Harris** Associate Professor of Educational Psychology (1955)
B.S., M.S., Utah State University, 1952, 1953; Ph.D., Cornell University, 1955.
- Bertrand F. Harrison** Professor of Botany (1929)
B.S., M.S., Brigham Young University, 1930, 1931; Ph.D., University of Chicago, 1937.
- Charles J. Hart** Professor of Recreation and of Physical and Health
Education (1925)
B.S., Utah State University, 1922; M.A., Ed.D., New York University, 1932, 1945.
- Edward L. Hart** Professor of English (1952)
B.S., University of Utah, 1939; M.A., University of Michigan, 1941; D. Phil., Oxford University (England), 1950.
- Milton F. Hartvigsen** Professor of Physical Education; Dean of the College
of Physical Education (1956)
B.S., M.Ed., Utah State University, 1930, 1939; Ed.D., University of California at Los Angeles, 1956.
- Richard T. Hawkins** Assistant Professor of Chemistry (1959)
B.A., Brigham Young University, 1951; Ph.D., University of Illinois, 1959.
- *C. Lynn Hayward** Professor of Zoology (1930)
B.S., M.S., Brigham Young University, 1927, 1931; Ph.D., University of Illinois, 1941.
- Israel C. Heaton** Professor of Recreation (1956)
B.S., M.S., Utah State University, 1940, 1941; Re.D., University of Indiana, 1955.
- Armin J. Hill** Professor of Physics; Dean of the College of Physical
and Engineering Sciences (1957)
B.S., M.S., Montana State College, 1932, 1938; M.S., Ph.D., California Institute of Technology, 1949, 1950.

- Max W. Hill** Assistant Professor of Physics (1958)
B.A., Brigham Young University, 1954; Ph.D., University of California, 1959.
- Lynn M. Hilton** Associate Professor of Education (1953)
B.S., M.S., University of Utah, 1950; Ph.D., University of Chicago, 1952.
- Lehi F. Hintze** Professor of Geology (1953)
B.A., University of Utah, 1941; M.A., Ph.D., Columbia University, 1949, 1951.
- Leona Holbrook** Professor of Physical Education (1937)
B.S., University of Utah, 1929; M.A., Ed.D., Columbia University, 1935, 1950.
- Keith H. Hoopes** Assistant Professor of Animal Husbandry (1957)
B.S., Utah State University, 1957; D.V.M., State College of Washington, 1956.
- A. Burt Horsley** Assistant Professor of Philosophy and Religion (1956)
B.A., M.A., Brigham Young University, 1945, 1954; DdP., Münster University, 1955;
Ph.D., Westphalian Welhelms Universität, Münster, Germany, 1956.
- William A. Hoskisson** Assistant Professor of Bacteriology (1957)
B.S., M.S., Utah State Univresity, 1938, 1941; Ph.D., University of Illinois, 1944.
- Robert J. Howell** Professor of Psychology (1952)
B.A., M.A., Ph.D., University of Utah, 1948, 1949, 1951.
- Paul V. Hyer** Assistant Professor of History (1957)
B.S., Brigham Young University, 1951; M.A., Ph.D., University of California, 1953,
1960.
- Reed M. Izatt** Associate Professor of Chemistry (1956)
B.S., Utah State University, 1951; Ph.D., Pennsylvania State University, 1954.
- Briant S. Jacobs** Professor of English (1946)
B.A., Brigham Young University, 1939; Ph.D., State University of Iowa, 1944.
- M. Wells Jakeman** Professor of Archaeology (1946)
B.A., University of Utah, 1931; M.A., University of Southern California, 1932; Ph.D.,
University of California, 1938.
- Martha R. Jenny** Associate Professor of Nursing (1952)
Diploma, Presbyterian Hospital School of Nursing, Chicago, 1926; B.S., Teachers
College, Columbia University, 1939; M.S., University of Wisconsin, 1946.
- De Lamar Jensen** Associate Professor of History (1957)
B.A., Brigham Young University, 1952; M.A., Ph.D., Columbia University, 1953,
1957.
- Vern H. Jensen** Assistant Professor of Personnel and Guidance (1949)
B.S., M.S., Brigham Young University, 1948, 1950; Ed.D., University of Colorado,
1957.
- Ernest C. Jeppsen** Professor of Industrial Education (1959)
B.S., Utah State University, 1926; M.S., Colorado State University, 1938.
- Eldred A. Johnson** Associate Professor of Accounting (1955)
B.A., M.A., Brigham Young University, 1949, 1950; C.P.A., State of California, 1952.
- Jens J. Jonsson** Professor of Electrical Engineering (1953)
B.S.G.E., B.S.E.E., University of Utah, 1944, 1946; M.S.E.E., Ph.D., Purdue Univer-
sity, 1947, 1951.
- Edwin R. Kimball** Professor of Physical Education (1935)
B.S., Brigham Young University, 1926; M.S., University of Southern California, 1935;
Ed.D., University of Oregon, 1955.
- Mary A. Krider** Associate Professor of Educational Psychology (1954)
B.A., University of Nebraska, 1927; Ed.M., University of Oklahoma, 1940; Ph.D.,
Wayne State University, 1958.
- Don H. Larsen** Professor of Bacteriology (1952)
B.S., Brigham Young University, 1940; M.A., University of Nebraska, 1942; Ph.D.,
University of Utah, 1950.
- Clinton F. Larson** Associate Professor of English (1947)
B.A., M.A., University of Utah, 1943, 1947; Ph.D., University of Denver, 1956.

- Gustive O. Larson** Associate Professor of Church History and Philosophy (1954)
B.A., M.A., University of Utah, 1920, 1926.
- *Reuben D. Law** Professor of Education (1936)
B.S., M.S., Utah State University, 1928, 1933; Ed.D., University of California, 1941.
- W. Derby Laws** Professor of Agronomy (1960)
B.S., Brigham Young University, 1939; M.S., Utah State University, 1941; Ph.D., Ohio State University, 1944.
- Harold R. Laycock** Associate Professor of Music (1949)
B.A., M.A., Brigham Young University, 1937, 1947; D.M.A., University of Southern California, 1960.
- Harold W. Lee** Professor of Modern Languages (1937)
B.A., M.A., Brigham Young University, 1938, 1940; Ph.D., Stanford University, 1946.
- Robert L. Layton** Assistant Professor of Geography (1954)
B.S., M.S., University of Utah, 1951, 1952; Ph.D., University of Syracuse, 1962.
- Wesley P. Lloyd** Professor of Personnel and Guidance; Dean of the Graduate School (1935)
B.S., M.S., Brigham Young University, 1927, 1934; Ph.D., University of Chicago, 1937.
- Daniel H. Ludlow** Professor of Religion (1955)
B.S., Utah State University, 1946; M.S., Indiana University, 1953; Ed.D., Columbia University, 1955.
- Ross J. McArthur** Associate Professor of Industrial Arts (1956)
B.S., M.S., Utah State University, 1949, 1953; Ed.D., University of Missouri, 1955.
- Keith L. McDonald** Assistant Professor of Physics (1960)
B.S., M.S., Ph.D., University of Utah, 1950, 1951, 1956.
- Quinn G. McKay** Associate Professor of Business Management (1960)
B.S., Brigham Young University, 1954; M.B.A., D.B.A., Harvard University, 1956, 1960.
- Kent H. McKnight** Associate Professor of Botany (1947)
B.S., M.S., Brigham Young University, 1948, 1952; Ph.D., University of Michigan, 1955.
- Delbert H. McNamara** Associate Professor of Physics (1955)
B.S., Ph.D., University of California at Berkeley, 1947, 1950.
- Walter E. McPhie** Assistant Professor of Education (1959)
B.S., Utah State University, 1952; M.A., University of Utah, 1953; Ed.D., Stanford University, 1959.
- Melvin P. Mabey** Associate Professor of History and Political Science (1955)
B.S., M.A., Brigham Young University, 1947, 1953; D. Phil, Oxford University (England), 1955.
- Truman G. Madsen** Associate Professor of Philosophy and Religion (1957)
B.S., M.S., University of Utah, 1950, 1951; A.M., Ph.D., Harvard University, 1957, 1960.
- Garth L. Mangum** Associate Professor of Economics (1960)
B.S., Brigham Young University, 1956; M.P.A., Ph.D., Harvard University, 1958, 1960.
- Conan E. Mathews** Professor of Art; Dean of College of Fine Arts (1956)
B.A., College of Idaho, 1936; M.F.A., University of Utah, 1950.
- Merlin J. Mecham** Associate Professor of Speech (1954)
B.A., Brigham Young University, 1948; M.S., Utah State University, 1949; Ph.D., Ohio State University, 1954.
- J. Keith Melville** Associate Professor of Political Science (1957)
B.A., University of Utah, 1947; M.A., University of California, 1949; Ph.D., University of Utah, 1956.
- Albert O. Mitchell** Professor of Dramatic Arts (1956)
B.S., M.S., University of Utah, 1933, 1935; Ph.D., University of Wisconsin, 1938.

- J. C. Moffitt** Professor of Educational Administration; Special Consultant to the Department of Educational Administration (1953)
B.S., M.S., Brigham Young University, 1926, 1929; Ph.D., University of Chicago, 1940.
- Elaine R. Monsen** Assistant Professor of Food and Nutrition (1960)
B.A., University of Utah, 1956; M.S., University of California, 1959; Ph.D., University of California, 1961.
- Darrel J. Monson** Associate Professor of Electrical Engineering (1956)
B.S., University of Utah, 1943; M.S., University of California at Berkeley, 1952.
- Joseph Monson, Jr.** Assistant Professor of Economics (1960)
B.S., University of Utah, 1953; M.A., Stanford University, 1954; Ph.D., University of California, 1960.
- Glen Moore** Associate Professor of Botany (1958)
B.S., M.S., Brigham Young University, 1949, 1950; Ph.D., University of Chicago, 1953.
- Alonzo J. Morley** Professor of Speech (1928)
B.A., M.A., Brigham Young University, 1925, 1931; Ph.D., University of Iowa, 1935.
- A. Reed Morrill** Professor of Educational Administration (1948)
B.S., M.S., Brigham Young University, 1928, 1937; Ed.D., University of Oregon, 1948.
- Lawrence Morris** Professor of Animal Husbandry (1952)
B.S.A., University of Arizona, 1925; M.S., Texas A. & M., 1928; Ph.D., Louisiana State University, 1938.
- Sadie O. Morris** Professor of Food and Nutrition (1957)
B.S., M.S., Utah State University, 1921, 1922; Ph.D., Columbia University, 1933.
- Darrell Moses** Assistant Professor of Educational Psychology (1959)
B.A., M.A., University of Utah, 1952, 1953; Ph.D., University of Southern California, 1960.
- J. Joel Moss** Professor of Human Development and Family Relationships (1961)
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., University of North Carolina, 1954.
- J. Richard Murdock** Assistant Professor of Botany (1952)
B.S., M.S., Brigham Young University, 1949, 1951; Ph.D., State College of Washington, 1957.
- Joseph R. Murphy** Assistant Professor of Zoology (1960)
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Nebraska, 1957.
- Glen T. Nelson** Professor of Economics (1954)
B.S., M.S., Utah State University, 1942, 1948; Ph.D., University of Illinois, 1950.
- K. LeRoi Nelson** Professor of Chemistry (1956)
B.S., Utah State University, 1948; Ph.D., Purdue University, 1952.
- H. Mark Nelson** Assistant Professor of Physics (1959)
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., Harvard University, 1959.
- Hugh W. Nibley** Professor of History and Religion (1946)
B.A., University of California at Los Angeles, 1934; Ph.D., University of California, 1938.
- Henry J. Nicholes** Professor of Health Education (1946)
B.A., Brigham Young University, 1935; M.S., Ph.D., University of Wisconsin, 1939, 1941.
- Joseph K. Nicholes** Professor of Chemistry (1933)
B.A., Brigham Young University, 1916; M.A., Stanford University, 1924.
- Howard C. Nielson** Professor of Economics (1957)
B.S., University of Utah, 1947; M.S., University of Oregon, 1949; M.B.A., Ph.D., Stanford University, 1956, 1957.
- Quentin R. Nordgren** Assistant Professor of Music (1955)
B.A., M.A., Brigham Young University, 1942, 1950; Ph.D., Indiana University, 1955.

- Drayton B. Nuttall** Professor of Educational Administration (1960)
B.A., M.A., University of Utah, 1936, 1941; Ed.D., University of California at Berkeley, 1951.
- Keith R. Oakes** Professor of Educational Administration (1957)
B.S., M.S., Utah State University, 1940, 1948; Ed.D., University of Southern California, 1954.
- Clinton L. Oaks** Professor of Business Management (1957)
B.A., Brigham Young University, 1948; M.B.A., Ph.D., Stanford Graduate School of Business, 1950, 1955.
- John E. Ord** Assistant Professor of Education (1957)
B.S., Utah State University, 1940; M.S., University of Utah, 1949; Ed.D., Stanford University, 1958.
- Bryce B. Orton** Assistant Professor of Accounting (1961)
B.S., Brigham Young University, 1951; M.B.A., University of Oregon, 1957; D.B.A., University of Washington, 1961.
- James B. Ott** Assistant Professor of Chemistry (1960)
B.S., M.S., Brigham Young University, 1955, 1956; Ph.D., University of California, 1959.
- Glen F. Ovard** Assistant Professor of Educational Philosophy (1958)
B.S., M.E., Brigham Young University, 1949, 1954; Ed.D., Stanford University, 1958.
- Thayne J. Packer** Associate Professor of Youth Leadership (1959)
B.S., Utah State University, 1939.
- Clyde A. Parker** Associate Professor of Personnel and Guidance (1953)
B.S., M.E., Brigham Young University, 1952; Ph.D., University of Minnesota, 1957.
- Dean A. Peterson** Professor of Business Education and Office Management; Director of the Summer School (1942)
B.S., Brigham Young University, 1938; M.S., Ed.D., University of Southern California, 1942, 1959.
- Evan T. Peterson** Assistant Professor of Sociology (1959)
B.S., M.S., Brigham Young University, 1952, 1953; Ph.D., University of Michigan, 1959.
- Hugh W. Peterson** Associate Professor of Chemistry (1927)
B.A., M.A., Brigham Young University, 1916, 1928; Ph.D., State University of Iowa, 1936.
- William R. Phillips** Associate Professor of Geology (1957)
B.S., M.S., Ph.D., University of Utah, 1950, 1951, 1954.
- Richard D. Poll** Professor of History and Political Science (1948)
B.A., M.A., Texas Christian University, 1938, 1939; Ph.D., University of California at Berkeley, 1948.
- Blaine M. Porter** Professor of Human Development and Family Relationships (1955)
B.S., M.A., Brigham Young University, 1947, 1949; Ph.D., Cornell University, 1952.
- J. Perry Polson** Assistant Professor of Business Education and Office Management (1952)
B.S., M.S., University of Utah, 1947, 1952; Ph.D., University of Southern California, 1961.
- Parley M. Pratt** Associate Professor of Business Management (1960)
B.A., University of Utah, 1950; M.B.A., Harvard University, 1954; Ph.D., Ohio State University, 1960.
- Edwin A. Read** Director of Laboratory Schools; Associate Professor of Education (1959)
B.Ed., M.Ed., University of Alberta, 1948, 1949; Ed.D., University of Oregon, 1956.
- Jesse W. Reeder** Associate Professor of History and Political Science (1952)
B.S., M.S., Utah State University, 1934, 1937; Ph.D., Cornell University, 1952.
- Howard T. Reid** Professor of Personnel and Guidance (1953)
B.A., Brigham Young University, 1940; M.S., Ed.D., University of Southern California, 1947, 1949.

- Russell R. Rich** Professor of Religious Instruction (1953)
B.S., Utah State University, 1936; M.A., Brigham Young University, 1949; Ed.D., University of Wyoming, 1955.
- Grant S. Richards** Associate Professor of Animal Husbandry (1945)
B.S., M.S., Utah State University, 1940, 1942.
- Chauncey C. Riddle** Associate Professor of Philosophy (1952)
B.S., Brigham Young University, 1947; M.A., Ph.D., Columbia University, 1951, 1958.
- J. Keith Rigby** Associate Professor of Geology (1953)
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., Columbia University, 1952.
- Burton W. Robinson** Professor of Clinical Psychology (1955)
B.S., M.S., Utah State University, 1951; Ph.D., Purdue University, 1954.
- Donald W. Robinson** Associate Professor of Mathematics (1956)
B.S., M.A., University of Utah, 1948, 1952; Ph.D., Case Institute of Technology, 1956.
- R. Max Rogers** Professor of Modern Languages (1945)
B.A., M.A., Brigham Young University, 1940, 1942; Ph.D., Stanford University, 1951.
- Ralph L. Rollins** Associate Professor of Civil Engineering (1956)
B.S., M.S., Utah State University, 1941, 1949; Ph.D., Iowa State College, 1954.
- Antone K. Romney** Professor of Educational Psychology; Dean of
College of Education (1945)
B.S., M.S., Brigham Young University, 1933, 1934; Ed.D., Stanford University, 1947.
- Richard D. Sagers** Assistant Professor of Bacteriology (1958)
B.S., M.S., Brigham Young University, 1954, 1955; Ph.D., University of Illinois, 1958.
- Clyde D. Sandgren** Vice-President and General Counsel; Professor of
Business Law
B.S., Brigham Young University, 1937; LL.B., St. John's University, 1939.
- Lawrence W. Sardoni** Professor of Music (1945)
B.A., M.A., Brigham Young University, 1935, 1946.
- Sterling D. Sessions** Assistant Professor of Business
Management (1961)
B.A., Brigham Young University, 1949; M.A., New York University, 1950; DBA, Harvard, 1962.
- Merlin J. Shaw** Assistant Professor of Religion (1960)
B.A., M.A., University of Utah, 1938, 1946; Ed.D., University of California at Berkeley, 1960.
- R. Phil Shumway** Associate Professor of Animal Husbandry (1949)
B.S., Utah State University, 1947; M.S., University of Minnesota, 1949; Ph.D., Utah State University, 1959.
- John M. Simonsen** Professor of Mechanical Engineering (1954)
B.S.M.E., University of Utah, 1950; M.S.M.E., Ph.D., Purdue University, 1952, 1955.
- Kay H. Smith** Assistant Professor of Psychology (1961)
B.A., M.A., Brigham Young University, 1957, 1958; Ph.D., Wayne State University, 1962.
- Oliver R. Smith** Professor of Journalism (1938)
B.A., Brigham Young University, 1938; Ph.D., State University of Iowa, 1951.
- Robert J. Smith** Professor of Accounting (1949)
B.S., Brigham Young University, 1948; M.B.A., Northwestern University, 1949; C.P.A., Illinois, 1949; C.P.A., State of Utah, 1960; D.B.A., Indiana University, 1957.
- Wilford E. Smith** Professor of Sociology (1948)
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Washington, 1952.
- L. Douglas Smoot** Assistant Professor of Chemical Engineering (1960)
B.S., Brigham Young University, 1957; M.S., Ph.D., University of Washington, 1958.
- Richard L. Snow** Assistant Professor of Chemistry (1957)
B.S., Ph.D., University of Utah, 1953, 1957.

- John L. Sorenson** Assistant Professor of Anthropology and Sociology (1958)
B.S., M.A., Brigham Young University, 1951, 1952; M.S., California Institute of Technology, 1952; Ph.D., University of California at Los Angeles, 1961.
- Irene Osmond Spears** Associate Professor of English (1936)
B.A., Brigham Young University, 1929; M.A., Ph.D., Stanford University, 1934, 1942.
- Sidney B. Sperry** Professor of Old Testament Languages and Literature (1932)
B.A., University of Utah, 1917; M.A., Ph.D., University of Chicago, 1926, 1931.
- Stephen S. Stanford** Associate Professor of Housing and Home Management (1959)
B.S., M.S., Brigham Young University, 1950, 1951; Ph.D., University of Colorado, 1959.
- Howard S. Stutz** Associate Professor of Botany (1953)
B.S., M.S., Brigham Young University, 1940, 1951; Ph.D., University of California at Berkeley, 1956.
- Albert D. Swensen** Professor of Chemistry (1947)
B.A., M.A., Brigham Young University, 1937, 1938; Ph.D., Louisiana State University, 1941.
- Russel B. Swensen** Professor of History (1933)
B.A., Brigham Young University, 1926; M.A., Ph.D., University of Chicago, 1931, 1934.
- Joseph N. Symons** Professor of Sociology (1953)
B.S., M.S., Utah State University, 1927, 1932; Ph.D., University of Chicago, 1944.
- Orea B. Tanner** Associate Professor of English (1938)
B.A., Brigham Young University, 1932; M.A., Columbia University, 1953.
- Vasco M. Tanner** Professor of Zoology and Entomology (1925)
B.A., Brigham Young University, 1915; M.A., University of Utah, 1920; Ph.D., Stanford University, 1925.
- *Wilmer W. Tanner** Associate Professor of Zoology and Entomology (1949)
B.S., M.A., Brigham Young University, 1936, 1937; Ph.D., University of Kansas, 1949.
- *Charles Taylor** Associate Professor of Psychology (1954)
B.Mus., A.B., Ph.D., Syracuse University, 1940, 1948, 1954.
- H. Darrel Taylor** Professor of Modern Languages (1948)
B.A., M.A., University of Arizona, 1947, 1948; Ph.D., University of Illinois, 1956.
- Harvey L. Taylor** Vice-President; Professor of Educational Administration (1956)
B.S., University of Utah, 1921; M.A., Columbia University, 1925; LL.D., Arizona State College, 1956.
- Weldon J. Taylor** Professor of Marketing; Dean of the College of Business (1937)
B.S., Brigham Young University, 1934; M.B.A., Harvard Graduate School of Business Administration, 1937; Ph.D., Graduate School of Business Administration, New York University, 1955.
- Jack B. Trunnell** Professor of Developmental Biology (1958)
B.A., Brigham Young University, 1942; M.D., University of Utah, 1945.
- Glen H. Turner** Associate Professor of Art (1947)
B.S., M.A., Brigham Young University, 1940, 1948.
- Rodney Turner** Assistant Professor of Religious Instruction (1956)
B.A., M.A., Brigham Young University, 1949, 1953; Ed.D., University of Southern California, 1960.
- S. Lyman Tyler** Professor of History; Director of Libraries (1952)
B.S., Ph.D., University of Utah, 1949, 1951.
- Richard D. Ulrich** Associate Professor of Mechanical Engineering (1960)
B.S., M.S.M.E., Ph.D., Purdue University, 1954, 1955, 1959.
- Quentin E. Utley** Assistant Professor of Education (1957)
B.S., Brigham Young University, 1940; Ph.D., University of Utah, 1960.

- Lee B. Valentine** Associate Professor of Modern Languages (1938)
B.A., M.A., Brigham Young University, 1939, 1948; Ph.D., Stanford University, 1958.
- Howard B. Vanfleet** Assistant Professor of Physics (1960)
B.S., Brigham Young University, 1955; Ph.D., University of Washington, 1961.
- Glenn M. Vernon** Associate Professor of Sociology (1959)
B.S., M.S., Brigham Young University, 1947, 1950; Ph.D., Washington State University, 1953.
- Rudger H. Walker** Professor of Agronomy; Dean of the College of
Biological and Agricultural Sciences (1960)
B.S., Brigham Young University, 1923; M.S., Ph.D., Iowa State University, 1925, 1927.
- Arthur R. Watkins** Professor of Modern Languages (1952)
B.A., M.A., Brigham Young University, 1941, 1942; Ph.D., Stanford University, 1948.
- Ray Watters** Associate Professor of Health and Physical Education (1957)
B.S., M.S., Utah State University, 1948, 1950; Ph.D., Indiana University, 1960.
- Stanley H. Watts** Associate Professor of Physical Education; Head
Basketball Coach (1947)
B.S., Brigham Young University, 1938.
- Stanley L. Welsh** Assistant Professor of Botany (1960)
B.S., M.S., Brigham Young University, 1951, 1957; Ph.D., Iowa State University, 1960.
- Fred G. White** Assistant Professor of Chemistry (1961)
B.S., M.S., Brigham Young University, 1952, 1956; Ph.D., University of California, 1961.
- Ray T. Wilcox** Assistant Professor of Education (1957)
B.S., M.Ed., Brigham Young University, 1951, 1954; Ed.D., University of California at Berkeley, 1957.
- Ernest J. Wilkins** Professor of Modern Languages (1953)
B.A., Brigham Young University, 1947; M.A., Ph.D., Stanford University, 1949, 1954.
- Ernest L. Wilkinson** President of the University
B.A., Brigham Young University, 1921; LL.B., George Washington University, 1926;
S.J.D., Harvard University, 1927; LL.D., Brigham Young University, 1957.
- Warren B. Wilson** Associate Professor of Art and Education (1954)
B.S., Utah State University, 1943; M.F.A., State University of Iowa, 1949.
- Glena D. Wood** Assistant Professor of English (1952)
B.A., Brigham Young University, 1936; M.A., Ph.D., University of Kentucky, 1949, 1958.
- Stephen L. Wood** Assistant Professor of Zoology and Entomology (1956)
B.S., M.S., Utah State University, 1946, 1948; Ph.D., University of Kansas, 1953.
- Golden L. Woolf** Professor of Educational Administration (1934)
B.A., M.A., Brigham Young University, 1934, 1936; Ed.D., University of California, 1940.
- David H. Yarn, Jr.** Professor of Theology and Philosophy; Dean of the
College of Religious Instruction (1950)
B.A., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1949, 1958.
- Karl E. Young** Professor of English (1930)
B.A., M.A., Oxford University (England), 1930, 1934.

The service of members of the Graduate Faculty will, on authorization by the Graduate Council, be supplemented by other members of the University faculty whose advanced training and effective academic work in highly specialized fields qualifies them for service in the graduate program.

*On leave.

General Information

History and Purpose

The first graduate offerings of Brigham Young University were established in 1922, forty-seven years after the founding of Brigham Young Academy and within an administrative unit designated as the Graduate Division. The objective of graduate study was then stated in these terms: "The essential aim . . . is to develop the power to do independent work and to encourage the spirit of research. Each candidate is expected to possess a broad general knowledge of his major subject with less detail in the case of his minor subjects."

Institutions of higher learning reflect the aspirations and major achievements of the American people. They carry the ideals, dreams, and hopes of democracy from generation to generation. From their ranks must come men and women trained in the skills, the arts, and the sciences, and dedicated to a high spiritual understanding through which men can work for the common good.

Professional Associations

Brigham Young University Graduate School is a member of the following professional associations:

1. Council of Graduate Schools in the United States
2. Western Association of Graduate Schools

Administration and Organization

The Graduate Dean. The dean of the Graduate School as general administrator of the graduate program of the University is responsible, under authorization of the academic vice-president and the President, to execute policy and procedure of the Graduate School. He serves as chairman of the Graduate Council and conducts meetings of the graduate faculty.

The Graduate Council. The chief administrative body for the graduate program is the Graduate Council, which includes the dean of the Graduate School, the director of research, four members of the graduate faculty elected at large for terms of three years and one member of the graduate faculty elected for a three-year term from each of the areas of subject matter included in the undergraduate colleges. The academic vice-president and the director of libraries are ex officio members of the council. The Graduate Council is empowered to act for the graduate faculty on all student petitions, on departmental requests for approval of faculty members for graduate instruction and supervision and initiates policy proposals regarding the graduate program.

The Graduate Faculty. It is the responsibility of the graduate faculty to formulate and recommend requirements for all types of graduate degrees and to recommend regulations and facilities to promote the scholarly activities and research interests of graduate students.

Graduate Degrees

The Graduate School offers programs leading to graduate degrees in areas designated by the terms "Pure Knowledge" and "Applied Knowledge." Degrees awarded in the pure knowledge area include Master of Arts, Master of Science, and Doctor of Philosophy. In these disciplines, the program emphasizes primarily a scholarly approach to theoretical and creative subject matter leading to the extension of human knowledge. Within these areas of study, a thesis is among the requirements for the master's degree. This requirement can be waived only

under most exceptional circumstances. An acceptable dissertation and foreign language proficiency are among the requirements for the Ph.D. degree.

Degrees in applied knowledge emphasize primarily the utilization of man's intellectual and cultural heritage for the benefit of mankind. Attention is given primarily to the pursuit of knowledge for its application in professional work with appropriate scholastic study and research toward this end. Included in this discipline are such degrees as Master of Business Administration, Master of Education, Master of Religious Education, and Doctor of Education.

Programs leading to the various graduate degrees are chosen by the department under the approval of the Graduate Council and the University administration. Each department shall designate whether or not the master's degree program will require foreign language proficiency.

The Graduate School offers the master's degree in 72 fields distributed through 42 graduate departments, and the doctor's degree in 25 fields distributed through 14 graduate departments. A department may be responsible for the operation of the graduate program in several fields. On the other hand, one field may include the offerings of several departments. The departments fall within the areas of: biological and agricultural sciences; business; education; family living; fine arts, humanities and social sciences; physical and engineering sciences; physical education; religious instruction; and industrial education.

Graduate degrees are offered in the following departments and fields:

Doctor of Philosophy

- Bacteriology
- Bible and Modern Scripture
- Botany
- Chemistry
 - Analytical-Physical Chemistry
 - Biochemistry
 - Inorganic Chemistry
 - Organic Chemistry
 - Physical Chemistry
- Geology
 - Economic Geology and Mineralogy
 - Stratigraphy, Sedimentation, and Paleontology
 - Structural, Field, and Dynamic Geology
- Graduate Education
 - Educational Psychology
- History
- History and Philosophy of Religion
- Human Development and Family Relationships
 - Child Development
 - Family Life Education
 - Marriage Counseling
- Music
- Physics
- Psychology
 - Clinical Psychology
 - General Psychology
- Sociology and Anthropology
- Zoology and Entomology

Doctor of Education

- Graduate Education
 - Educational Administration
 - Educational Personnel and Guidance
 - Educational Psychology

Master of Arts and Master of Science

Accounting
Agronomy
Animal Husbandry
Archaeology
Art
 Painting and Sculpture
 Design and Crafts
Bacteriology
Bible and Modern Scripture
Botany
Business Education
Chemical Engineering
Chemistry
 Analytical-Physical Chemistry
 Biochemistry
 Inorganic Chemistry
 Organic Chemistry
 Physical Chemistry
Civil Engineering
Dramatic Arts
 Interpretation
 Radio and Television
 Theatre and Dramatic Arts
Economics
Electrical Engineering
English
 American Literature
 English Literature
Foods and Nutrition
Geography
Geology
 Economic Geology and Mineralogy
 Stratigraphy, Sedimentation, and Paleontology
 Structural, Field, and Dynamic Geology
Graduate Education
 Educational Administration
 Educational Psychology
 Elementary Education
 Secondary Education
 Personnel and Guidance
 School Psychology (departmental)
 Special Education
Health
History
History and Philosophy of Religion
Human Development and Family Relationships
 Child Development
 Family Life Education
Industrial Education
Institute of Government Services
 State and Local Government
 National Government
 International Affairs

Journalism
Languages
 French
 German
 Greek
 Latin
 Portuguese
 Spanish
Mathematics
Mechanical Engineering
Music
 Music Education
 Music Theory
 Musicology
Physical Education
Physics
Political Science
Psychology
 General Psychology
 School Psychology (interdepartmental)
Recreation
Semitic Languages
Sociology and Anthropology
Speech
 Public Speaking
 Speech Pathology
Zoology
 Natural History
 Entomology
 Morphology and Experimental Zoology

Master of Business Administration

Business Management

Master of Education

Educational Administration
Educational Psychology
Elementary Education
Personnel and Guidance
School Psychology
Secondary Education
Special Education

Master of Religious Education

Religious Education

Minors are offered in the fields listed above in addition to the following fields:

Agricultural Economics
Applied Music
Basic Chemistry Minor
Business Management
Educational Philosophy and Programs

Finance and Banking
Industrial Management
Library Science
Marketing
Statistics

General Requirements

ADMISSION TO THE GRADUATE SCHOOL

At Brigham Young University, all students who have the bachelor's degree from an accredited university register with the Graduate School, except in the case of a student who is seeking a second bachelor's degree.

Requirements for Admission on a Degree-Seeking Basis. For admission as a degree-seeking graduate student an applicant must present a 3.0 (B) cumulative average during his latest two years of academic work or during a later period approved by the department and the dean of the Graduate School. The applicant may be required to furnish additional evidence concerning his ability to pursue graduate work in his major field, such as capacity for research or creativity, facility in written and oral expression, appropriate professional objectives, or through qualifying examinations. Remedial work or other requirements may be prescribed.

A student whose native language is not English is cautioned that adequate command of the English language is indispensable to successful graduate work. He must include with his application for admission a statement from a responsible official that the applicant knows how to read, write, speak, and understand the English language sufficiently well to be able to pursue a satisfactory program of study in the Graduate School. Admission ordinarily will be granted on a provisional basis pending the applicant's experience on the campus that demonstrates his ability to do successful graduate work.

Procedure for Admission on a Degree-Seeking Basis. To be admitted to the Graduate School on a degree-seeking basis, a student should file with the Admissions Office of the University an application which includes the following: (1) A form for admission or readmission to the University (unless the student was in attendance the preceding semester). (2) Two transcripts of all previous college work (if that work was **not** done at Brigham Young University). In addition to the items submitted to the Admissions Office, there should be submitted to the dean of the Graduate School, a form for admission to the Graduate School on a degree-seeking basis, and three letters of recommendation. Two of these letters should relate to the student's academic ability and the third to his character. These letters should be sent directly to the Graduate Dean by those making the recommendations. Forms for application and for letters of recommendation are provided by the Graduate School office.

Application forms should be filed at least two months before the beginning of the semester in which the student plans to begin his work. Students who do not have their applications filed by this date cannot be assured that their applications will be acted upon by registration time.

The forms are evaluated by the department in which the student intends to major and by the dean of the Graduate School. Permission to register as a graduate student is by notice from the Admissions Office of the University and does not by itself constitute permission to seek a higher degree. Permission to seek a higher degree is by notice signed by the chairman of the department and the dean of the Graduate School.

Provisional Students. The student whose latest two years of academic record is between 2.50 and 3.0 (B) or who matriculated from a university which is not accredited, may be admitted on a provisional classification upon the recommendation of his department chairman and approval of the Graduate Dean. (1) A student classified as provisional shall be required to submit a minimum of 12 semes-

ter hours of credit with a "B" average before being reconsidered for full degree-seeking status. Graduate credit in an amount of 16 hours received while on provisional status may, if acceptable to a department, be counted toward a graduate degree. (2) For special and significant reason an advisory committee may recommend that graduate credit beyond 16 hours and not in excess of 21 hours earned during provisional status, be granted toward the degree. Final action on such a request will be the responsibility of the Graduate Dean.

Admission on a Non-Degree-Seeking Basis. A student with the bachelor's degree may register on a non-degree-seeking basis for a wide variety of courses for which he is prepared. To be admitted to the Graduate School on a non-degree-seeking basis, a student should file with the University Admissions Office (unless he was in attendance the preceding semester), an application for admission or readmission, furnish an official transcript of all preceding work at institutions attended (if that work was not done at Brigham Young University), show evidence of having received the bachelor's degree, and present an academic record of 2.0 or higher. Admission is by means of a registration permit issued by the University Admissions Office. If a student has been in attendance at Brigham Young University the previous semester, registration materials are automatically prepared for him.

GRADUATE CREDIT FOR SENIORS

If, during the last semester of the senior year, a candidate for a baccalaureate degree finds it possible to complete all requirements for such a degree with a registration of fewer than sixteen hours of undergraduate credit, he may register for graduate credit to the extent that the total registration shall not exceed sixteen hours during the semester. A form provided by the Graduate School office, stating that all baccalaureate requirements are being met during the current semester, must be signed by the appropriate undergraduate dean and presented to the dean of the Graduate School prior to such registration. This registration does not constitute permission to seek a higher degree.

TRANSFERRED CREDIT

Graduate credit acceptable to a student's advisory committee and not in excess of 10 semester hours may be transferred from another accredited university upon the approval of the student's advisory committee and the Graduate Council. Forms for petitioning for such transfers are available in the Graduate School office. Credit transferred must represent work which is a fair and reasonable equivalent of corresponding work at this University. All transferred credit must be of grade "B" or better. At least twenty semester hours toward the master's degree must be taken on the Brigham Young University campus in Provo.

On recommendation of the student's advisory committee, upper-division courses starred at registration time and listed on the student's official course outline, can apply toward a graduate degree. Such courses not so designated at registration time, are not applicable.

STUDENT LOAD

An academic load for graduate students not part-time employed is from 10 to 16 semester hours or their equivalent in research. Teaching assistants and others employed part-time should limit their loads to fewer than 12 credit hours as approved by the registration adviser and the dean of the Graduate School. Full-time employees should register for not more than 5 semester hours. Experience has shown that because of the intense character of graduate work and the academic grade-point average required, it is usually advisable for graduate students to limit their programs to less than the maximum permitted.

SCHOLASTIC STANDARDS

The degree-seeking student who fails to maintain at least a 2.7 grade-point average in his graduate work each semester will be placed on probation and must earn a "B" (3.0) average in graduate level work the next semester or he

ceases to be classified on a degree-seeking basis. The average grade of all graduate work attempted must be at least "B." At least three-fourths of all work applying on the degree must be of grade "B" or better; none of the remainder may be of a grade lower than "C." A student with a cumulative grade-point average under 2.0, is not eligible for registration in the graduate school under any classification.

DEPARTMENTAL REQUIREMENTS

Special departmental requirements for advanced degrees are listed under the major department.

GRADUATION

All graduating students must attend the graduation exercises unless they have made satisfactory explanations of absence and have been officially excused under the authority of the President of the University. The request to be excused from the commencement exercises must be presented in writing at least two weeks prior to commencement. Extreme emergencies of either illness or death in the family are the only exceptions to this requirement. Students not officially excused from commencement will not be graduated until they attend a later commencement in person.

MASTER'S DEGREE

The Graduate School provides credit toward the following degrees: Master of Arts, Master of Science, Master of Business Administration, Master of Education, and Master of Religious Education. Departments are authorized to establish the Master of Science or the Master of Arts degree program on two plans: Plan A requires a thesis. Plan B requires, in lieu of a thesis, academic performance beyond thirty hours of course work to be recommended by the department and approved by the Graduate Council.

Admission on a graduate degree-seeking basis must be completed before the student registers for the last 15 hours of credit intended to apply on the degree.

PROCEDURE FOR THE GRADUATE DEGREE-SEEKING STUDENT

Following admission to the Graduate School as a degree-seeking student, forms covering the following headings should be secured from the Office of the Graduate Dean and returned to the same office within the time limit indicated:

Advisory Committee. The advisory committee must be formed and the names of the members on file in the office of the graduate dean within two months after a student's first registration on a degree-seeking basis.

The student's program and his thesis are developed under the direction and supervision of the advisory committee. The committee for the master's degree consists of at least two members, one member representing the major field and one the minor or supporting field. These members are nominated by the student from the graduate faculty of his major and minor or supporting fields, in consultation with the chairman of his major department and with the approval of the dean of the Graduate School. The chairman of the advisory committee is a representative of the major field. This committee advises the student in his proposed program, approves his registration, and directs his research and the work on his thesis. At least 15 hours must be taken after the advisory committee has been formed and must be approved by the advisory committee at registration. All work which is to apply toward an advanced degree must be approved by the advisory committee.

An advisory committee may be changed with the approval of all prospective members of the newly constituted committee, the chairman of the major department, and the dean of the Graduate School. After such a change, the student reviews his entire program with the new committee.

English 99. The English 99 form is due during the first semester of graduate work. Students who lack ability to write clearly and correctly, (as determined

by the chairman of the student's major department) are required to enroll in English 99, Problems in Thesis Writing, a non-credit course. Students should take this course at the earliest possible time.

Course Outline. This constitutes the official program of the graduate student and is due in the office of the Graduate Dean 30 days after the first registration as a degree-seeking student.

Revision Sheet. This form is due any time there is a change in the student's program, advisory committee membership, etc.

Thesis Title Card and Prospectus of the Thesis. Before beginning his research or creative work, the student must obtain approval of the thesis problem from his advisory committee, and he must file with the office of the graduate dean a title card and a prospectus, both signed by the members of the advisory committee. He is required to complete at least one semester of study after this is done.

Application for Graduation. A student, when contemplating graduation, should file an application for graduation with the Graduate School office and pay the graduation fee of \$20 at the Treasurer's Office. This should be done not later than January 15 for June graduates and by March 15 for August graduates, and before filing the thesis with the Graduate School office or scheduling the final examination.

AMOUNT AND DISTRIBUTION OF CREDIT

The master's degree requires a minimum of 30 semester hours of credit and may be obtained by completing one of the options listed below. The second option is available only after a department has submitted its program to and been approved by the Graduate Council.

Applicable to Options I and II is the provision that at least 21 credit hours must consist of courses for which there is a systematic body of subject matter and is to be identified with a given course number such as ordinarily constitutes a formal course or seminar. Individual reading, thesis, research, and special problems may not be included in these latter totals.

Option I. At least 15 semester hours, exclusive of thesis, must be in the major field and at least 9 semester hours in a minor field approved by the major department.

Option II. Thirty hours must be in the major field or in direct support of the major field. Courses outside the major field and considered as in direct support of the major field must be specified. Such courses should not constitute more than 12 of the 30 credit hours. Departments will be permitted to adopt Option II on request of the department and approval of the Graduate Council. The department need not list courses which are considered to be in direct support of the major field, but when Option II is used, the student's committee should consist of a representative from the major field and one from a supporting area.

A limited amount of upper division undergraduate work may be applied toward the master's degree only if starred and initialed on the course outline of a degree-seeking student by the student's adviser at the beginning of the student's graduate work. No such work carrying a "C" grade will be applied toward the master's degree. At least 20 hours of the credit for the master's degree must be in the 500 series or above and taken on the Brigham Young University campus in Provo.

Neither lower division nor correspondence credit apply toward a graduate degree.

FILING OF THESIS

An academic department may, on special authorization of the Graduate Council, choose as a policy, provision No. 2 as indicated below. In departments where such approval has been granted, the candidate may choose either of the two following provisions for filing the thesis.

(1) A complete, signed but unbound copy of the thesis in final form, and one extra original copy of an approved abstract (two copies if the student is majoring or minoring in education) equalling 60 lines of 60 spaces each, must be filed with the office of the graduate dean at least fifteen days prior to the final examination and not later than thirty days before graduation.

(2) An approved copy of the thesis in good form, but not in final form, together with an approved copy of the abstract, equalling 60 lines of 60 spaces each, must be filed with the office of the graduate dean not later than 45 days prior to graduation and fifteen days prior to the final examination.

Thesis Deadline Dates. If provision 2 is chosen, a complete, signed, but unbound copy of the thesis in **final form** and one extra original copy of an approved abstract (two copies if the student is majoring or minoring in education) must be filed with the office of the graduate dean at least 15 days prior to graduation.

The University requires a minimum of four copies of the thesis and five copies of the abstract. In assembling the material for binding, the abstract should follow the thesis and bibliography.

Detailed directions for the form of the thesis may be obtained from the major department. A department may provide a maximum of six hours of thesis credit.

FINAL ORAL EXAMINATION

The passing of a final oral examination is required not less than 15 days prior to graduation if provision No. 1 is chosen, and not less than 30 days prior to graduation if provision No. 2 is chosen.

It is the duty of the student, after submitting final copies of his thesis to the office of the Graduate Dean, to schedule the final examination, after obtaining from the chairman of the major department, the names of the examining committee. Forms are available for this purpose at the office of the graduate dean.

The examination committee for the master's degree will consist normally of at least four members. There must be at least two examiners from the student's major field and one examiner from the student's minor or supporting field. There shall be on the committee at least two examiners who are not members of the student's thesis advisory committee. The committee may consist of a minimum of three examiners if constituted as provided above. In any case, more than one negative vote of the examination committee will prevent the student from passing the examination. Other members of the graduate faculty may attend the examination and enter the discussion, but they may not vote.

The final oral examination consists of a student's defense of his thesis and a searching examination into the student's preparation and competence in his major and minor or supporting fields.

Master's Degree

Master of Arts Degree. The Master of Arts degree is awarded upon completion of general and departmental requirements.

Master of Science Degree. The Master of Science degree is awarded upon completion of the general requirements listed above and any special requirements listed by the department.

Master of Business Administration Degree. The Master of Business Administration degree is awarded upon completion of the two-year professional program described under the Department of Business Management.

Master of Education Degree. The Master of Education degree is awarded upon completion of the requirements for the Master of Science degree, with the following exceptions: (1) a satisfactory field project (course 698) may be substituted for the thesis, (2) a total of 30 credit hours shall be presented in addition to the field project, and (3) one year of teaching experience is required.

The project is a study of a practical problem in the field of the candidate's interest as a teacher. The problem is selected and developed by the student, sub-

ject to the approval of his advisory committee. The finished report on the project should conform to the requirements for a thesis in matters of style, format, and manner of filing.

Master of Religious Education Degree. The Master of Religious Education degree is awarded upon completion of the requirements listed above and the special requirements listed under the Department of Religious Education.

GRADUATE CERTIFICATION

Two-Year Certificate in Educational Administration. The two-year certificate in educational administration is offered for the preparation of school principals and supervisors, and is awarded after completion of requirements listed under the Department of Educational Administration.

TIME LIMIT

Graduate credits are applicable toward the master's degree only within a six-year period from the time they are received. Students are counseled to complete their programs without notable interruption.

Doctor of Education Degree

ADMISSION REQUIREMENTS

For admission to degree-seeking status as a doctoral applicant, the student must have completed 22 semester hours of education or possess certification as a teacher, must have completed two years of successful professional experience, and must possess demonstrable acquaintance with the field of education. The student will be tested for familiarity with background factors of significance to education.

CLASSIFICATION OF DOCTORAL STUDENTS

Students seeking the Doctor of Education degree are classified as **doctoral applicants** and **doctoral candidates**. The student must be admitted to degree-seeking status as a **doctoral applicant** at Brigham Young University during the first semester he is enrolled as a full-time graduate student. He is **admitted to candidacy** after meeting conditions for admission to candidacy and before registering for the field project and internship.

ADVISORY COMMITTEE

The early advisement of the student, until he passes the entrance examination, is supervised by the graduate committee in education which assigns him a specific adviser in his major field.

When the student successfully passes the entrance requirements, he is notified to consult with his department chairman to arrange for his advisory committee. The chairman and one member of the advisory committee must be in the student's major field, and there must be at least two additional members representing two other departments. The chairman of the major department is a member *ex officio*. All work which is to apply toward the Doctor of Education degree must be approved by the advisory committee.

As soon as his program of study is determined in consultation with the advisory committee, the student should supply each member of the committee with a copy of the program. He should file one copy, signed by the committee members, with the Graduate School office and one copy with the graduate office of the College of Education.

The membership of the advisory committee may be changed with the approval of the chairman of the student's advisory committee, the chairman of the major department, the graduate committee in education, and the dean of the Graduate School.

ACADEMIC REQUIREMENTS

The Ed.D. degree is awarded for distinguished attainment in a recognized field of learning. The student must meet the planned program as established by

his major department. The equivalent of a minimum of three years of full-time study beyond the bachelor's degree is required. Full-time study is defined as ten to sixteen hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements, and may accept or require up to two years of full-time study elsewhere. One year must consist of two consecutive semesters on the campus of the University, during which the student takes one two-hour seminar each semester. There is no foreign language requirement. The student must demonstrate proficiency in statistics to the satisfaction of the advisory committee.

EXAMINATIONS

A comprehensive examination is administered to all doctoral students after approximately sixty semester hours have been completed. A final written examination is administered to all doctoral students at the completion of their course work.

ADMISSION TO CANDIDACY

Satisfactory completion of the final written examination is necessary for admission to candidacy for the Doctor of Education degree. The student has the responsibility of filing with the dean of the Graduate School a form, provided by the office of the graduate dean and signed by the student's advisory committee and the chairman of his major department, stating that all conditions for admission to candidacy have been met.

Notice from the dean of the Graduate School then admits the student to candidacy for the degree. This normally will be done after the completion of his graduate courses.

FIELD PROJECT AND REPORT

A research project for the improvement of an education program must be carried out under the direction of the student's advisory committee, after he has passed the final written examination. The report of the field study must meet the same standards of format as the Doctor of Philosophy dissertation and must be submitted under the same schedule and requirements regarding publication.

FINAL ORAL EXAMINATION

Not later than 15 days before graduation, the student must pass a final examination on the field project. The examining committee consists of the student's advisory committee and such others as the department chairman and dean of the Graduate School may designate.

TIME LIMIT

All academic work applying toward the Doctor of Education degree must be completed within a period not to exceed nine years.

Doctor of Philosophy Degree

CLASSIFICATION OF DOCTORAL STUDENTS

Students admitted to the Doctor of Philosophy degree program are classified as **doctoral applicants** and **doctoral candidates**. The student must be admitted to degree-seeking status as a **doctoral applicant** at Brigham Young University not later than the beginning of his last three semesters of full-time study intended to apply on the degree. The student is **admitted to candidacy** after meeting conditions for admission to candidacy and before registering for the last two semesters of full-time study intended to apply on the degree.

ADVISORY COMMITTEE

The student's program and his dissertation are developed under the direction and supervision of an advisory committee. The advisory committee for a student working for the Doctor of Philosophy degree consists of at least three members.

These members are nominated by the student from the graduate faculty of his major and minor or supporting fields, in consultation with the chairman of his major department and with the approval of the dean of the Graduate School. The chairman of the advisory committee is a representative of the major field. All work which is to apply toward the Doctor of Philosophy degree must be approved by the advisory committee.

As soon as his program of study is determined in consultation with the advisory committee, the student should supply each member of the committee with a copy of the program, and he should file with the Graduate School office, a properly signed copy.

The membership of the advisory committee may be changed with the approval of all prospective members of the newly constituted committee, the chairman of the major department, and the dean of the Graduate School. After such a change the student reviews his entire program with the new committee.

ACADEMIC REQUIREMENTS

The Doctor of Philosophy degree is awarded for distinguished attainment in a recognized field of learning, not merely for the completion of courses of study. The student must select a major field of study and at least one minor or supporting field approved by the department chairman and the dean of the Graduate School. Specific requirements in these fields of full-time study beyond the bachelor's degree is required. A full semester of residence credit is defined as from twelve to sixteen hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements, and may accept or require up to two years of full-time study elsewhere. Ordinarily two years of full-time course work or research is to be taken on the Brigham Young University campus in Provo. At least two consecutive semesters of work or the equivalent of 24 or more semester hours must be taken on the Provo campus. For special reason and on recommendation of the student's advisory committee and by final authorization of the Graduate Council, the minimum time in residence on the Provo campus may be reduced to two full semesters during which 24 or more credit hours will be earned.

LANGUAGE REQUIREMENT

Before completing his comprehensive examinations and being admitted to candidacy, the student must present satisfactory evidence of proficiency in two foreign languages, one of which must be French or German. The selection of both required languages will be made in consultation with the student's advisory committee. In exceptional cases, the student may petition the Graduate Council to substitute Russian for French or German. Minimum oral facility must be demonstrated in one language to be used in fulfilling the requirements for the Doctor of Philosophy Degree.

LANGUAGE EXAMINATION

Language examinations for the Ph.D. degree and for other graduate degrees if required will be administered and evaluated by the language faculty of the University. The examination will be given only during the last full week of October, February, April, and July according to the following schedule: Monday, French; Tuesday, German; Wednesday, Spanish; Thursday, Russian; Friday, all other languages. The student must file an application to take a language examination with the office of the dean of the Graduate School at least two weeks prior to the date of the examination.

The language examination will consist of the translation of 600 words which represent passages taken from materials selected by the student's major department. The student will be limited to three hours time and may use a dictionary. The translation must be rendered into acceptable written English with the meaning of the passage in the original language coming through the translation unimpaired. Minimum oral facility, if required, is limited to the ability to carry on a simple conversation with acceptable pronunciation.

An examination for a given language may be taken the first time without the payment of any fee or special permission. Approval for the second trial must

be the written permission of the chairman of the academic department and payment of a \$10 fee. Subsequent attempts must satisfy the same requirements as the second examination and in addition requires the written permission of the Graduate Dean.

COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination on his doctoral fields under the direction of his major department. This examination will normally be given at the end of the second year of graduate study.

ADMISSION TO CANDIDACY

Satisfactory completion of the comprehensive examination and the language requirement is necessary for admission to candidacy for the Doctor of Philosophy degree. The student has the responsibility of filing with the dean of the Graduate School a form, provided by the office of the graduate dean and signed by his advisory committee and the chairman of his major department, stating that all conditions for admission to candidacy have been met and that his dissertation subject has been approved.

Notice by the dean of the Graduate School then admits the student to candidacy for the degree. This will normally be done following the completion of two years of graduate work.

DISSERTATION

After being admitted to candidacy, the student under the direction of his advisory committee, pursues original research toward an acceptable dissertation.

An academic department may, on special authorization of the Graduate Council, choose as a program provision No. 2 as indicated below. In departments where such approval has been granted, the candidate may choose either of the two following provisions for filing the dissertation.

(1) A complete, signed, but unbound copy of the dissertation in final form, and one extra original copy of an approved abstract (two copies if the student is majoring or minoring in education) equalling 60 lines of 60 spaces each, must be filed with the office of the graduate dean at least fifteen days prior to the final examination and not later than thirty days before graduation.

(2) An approved copy of the dissertation in good form, but not in final form, together with an approved copy of the abstract, equalling 60 lines of 60 spaces each, must be filed with the office of the graduate dean not later than 45 days prior to graduation and fifteen days prior to the final examination.

If provision No. 2 is chosen, a complete, signed, but unbound copy of the dissertation in **final form** and one extra original copy of an approved abstract (two copies if the student is majoring or minoring in education) must be filed with the office of the graduate dean at least 15 days before graduation.

A minimum of four copies of the dissertation and six copies of the abstract is required by the Graduate School. The student is also required to furnish the University with fifteen reprints of his dissertation or to arrange for its micro-filming.

After the dissertation has been accepted by the Graduate Office, the student will deliver 4 or more copies to Room 112 Library and pay the \$25 fee for publishing the dissertation through University Microfilm Incorporated. The library will also collect \$2.75 for each copy of the dissertation to be bound or a minimum of \$11. The student will secure further instructions regarding binding, microfilming, and publications of dissertations in Room 112 Library.

FINAL EXAMINATION

Not later than fifteen days before graduation, the student must pass a final examination on his dissertation and applicable subject matter given by a committee of not fewer than five members. The committee consists of the advisory committee, plus such other members as the department chairman and the dean of the Graduate School may designate.

TIME LIMIT

All academic credit applying toward the Doctor of Philosophy degree must be completed within nine years.

Scholarships, Fellowships, and Assistantships

Graduate awards are administered through the committee on graduate awards under the chairmanship of the dean of the Graduate School.

Fellowships under the National Defense Education Act are available in several fields.

Fellowships and Scholarships. The University has established the following fellowships and scholarships for graduate students.

23 fellowships ranging in value from full tuition and general fees to an amount of \$1,500 plus tuition and general fees.

26 scholarships ranging in value from full tuition and general fees to an amount of \$2,000 plus tuition and general fees.

Scholarships and fellowships are awarded on the basis of high academic achievement and are available to students in all areas of graduate study. Recipients must possess a baccalaureate degree at the beginning of the period for which the scholarship or fellowship is granted and must be a candidate for a higher degree. Applications for the academic year beginning in September should be filed by the preceding March 15. Application forms may be obtained from the Graduate Scholarship and Awards Office located in the Abraham O. Smoot Administration and General Services Building.

Teaching and Laboratory Assistantships. Many departments employ graduate students as teaching or laboratory assistants. Assistantships are awarded on the basis of scholastic accomplishment and competence for service. Remuneration is based on the time devoted to teaching duties. The stipends vary from \$750 to \$2,000 per year. Application forms and detailed information may be obtained by writing to the chairman of the department in which the applicant wishes to become an assistant.

Research Assistantships and Fellowships. A substantial number of research assistantships and fellowships are available at Brigham Young University. Recipients work part time under the supervision of a faculty member on research projects supported by university, government, or private sources. The awards vary from \$1,200 to \$2,000 per school year, depending upon the type of research and the amount of time devoted to it. Students interested in appointments to research assistantships or fellowships should direct inquiries to the University director of research or to the chairman of the major department.

Summer Session

Graduate students doing part of their work at the University during the summer will find a wide range of graduate courses suited to their purpose. Summer School is divided into two terms. Students may register for a maximum of six credit hours per term.

Library Facilities

The Brigham Young University library is presently expanding its research collections on a major scale. With the completion of the new library building in 1961, it was possible to bring together parts of the collection that had been temporarily housed in almost every major building on the campus. The general collection is available on open shelves on four of the five floor levels: two below and two above the ground floor. The central reference collection, the public catalog, the circulation desk, and the administrative offices are located on the ground

level. An information booklet is available to assist students in the use of these new facilities. Study space is available on each floor interspersed with stack areas. Special study facilities are provided for the use of graduate students and other mature scholars.

With the growth of the collection an effort is being made to acquire those library tools necessary to a graduate research program. A well-trained staff is available to assist scholars in the use of the book collection, and to interpret the specialized bibliographies, catalogs, guides, and indexes.

The University Library contains approximately 325,000 bound volumes, several thousand pamphlets, and an extensive collection of titles on microfilm and microcards. A good selection of professional journals and of other current periodicals, as well as local, regional, and national newspapers, is also available.

The facilities of the L.D.S. Genealogical and Historical Library in Salt Lake City, which contains over 500,000 titles, are also available by special arrangement, as are collections of Utah and Mormon materials in the L.D.S. Church Historian's Library in the same city.

Evening School

On week-day evenings, classes are conducted on campus in areas of interest to adults who desire to improve or enrich their lives through part-time education.

Regular university credit, equivalent to daytime classes, is given for all Evening School classes. Anyone wishing to do so may take a class on a non-credit basis as an auditor.

Class schedules, listing classes and giving detailed information about all procedures, are available free of charge upon request. Courses listed in the Evening School schedule which do not receive ten or more registrations will be cancelled. Students who have registered in cancelled classes are notified and invited to join other classes or are given full refunds.

Veterans are eligible to enroll under the G.I. Bill if they meet the eligibility requirements of the Veterans' Administration.

Day students may enroll in Evening School classes on their regular registration card by picking up cards marked "Section 90." An extra fee of \$3.00 per credit hour is charged for these classes.

One dollar is charged for each change slip presented after the first week of the semester unless the action is caused by Evening School.

Each student registered through Extension Services who discontinues attendance at class **must** use the proper procedure to withdraw by coming to the Extension Center.

A pro-rated refund of tuition fees is made to those who withdraw properly from evening classes during the first four weeks of the semester. There is no refund for withdrawals occurring after the fourth week of the semester.

Students registering for evening classes only register from 5:00 to 9:00 p.m. on the dates announced in current schedules.

University Fees

Although the following figures are applicable at the time of the printing of this catalog, the University must reserve the right to change them without notice.

General Fees

REGULAR STUDENTS:

	1st Semester	2nd Semester	Total
Tuition	\$ 97	\$ 97	\$194
Building, gymnasium, student activity, and health fees	43	40	80
	<hr/> \$140	<hr/> \$140	<hr/> \$280

SPECIAL STUDENTS:

	Tuition	General Service*	Total
Minimum fee	\$22.00	\$ 4.50	\$27.00
Three credit hours	31.00	6.00	37.00
Four credit hours	39.50	7.50	47.00
Five credit hours	48.00	9.00	57.00
Six credit hours	56.50	10.50	67.00
Seven credit hours	65.00	12.00	77.00
Eight credit hours	73.50	13.50	87.00
Nine credit hours	82.00	15.00	97.00

*The general service fee does not include health service or student activity privileges.

The charge for auditing courses is the same as taking them for credit.

All graduate students who continue to use University services or facilities (including consultation with a major professor) will pay a special service fee of \$20 per semester or \$10 for each term of Summer Session.

PAYMENT OF FEES

All students registering are expected to pay full tuition and fees prior to or at the time of registration.

Included in the payment of tuition is a \$10 deposit which is not refundable, even in the event that the student does not complete registration or attend school. For special students (those who do not carry ten or more hours) the non-refundable deposit is \$5.

LATE REGISTRATION FEE

Late registration fees are assessed all regular and special students for failure to complete registration on scheduled dates. (No exception is made regardless of the reason for being late.)

Failure to complete registration on scheduled dates.

1. First five regular school days following the scheduled
registration date \$ 5.00
2. After the fifth day following scheduled registration date 10.00

Late fees for special students are assessed as 50 per cent of the rate for regular students.

MISCELLANEOUS GENERAL FEES AND FINES

Graduation fee, master's or doctor's degree (includes printing of thesis abstract)	\$20.00
Late application for graduation fee (for those who apply after January 15 for June commencement and after March 15 for August commencement)	3.00
Identification photo50
Change of registration fee, for each change slip presented after the first week of each semester	1.00
Change of grade fee(unless the change is the responsibility of the University)	3.00
Examination, special equivalency, per credit hour (the maximum fee in any one subject shall not exceed \$45)	7.50
Duplicate activity card	1.00
Transcript fee	1.00
(\$1.00 for first copy on every order, plus \$.50 for each additional copy)	
Automobile registration and parking fee:	
Beginning of school year	5.00
Beginning of Second Semester	3.00
Traffic violation fines	1.00 to 5.00
Special service fee for unregistered graduate students who are using University facilities:	
Each semester	20.00
Each term of summer session	10.00
Thesis binding (4 to 5 copies)	11.00 to 13.00
Registration in Evening School. (All daytime students will be required to pay an additional fee of \$3 per credit hour for all hours carried under the Evening School program.)	

FEES FOR INSTRUCTION IN MUSIC AND SPEECH

For fees in special private instruction in music and speech see the General Catalog, University Fees section.

RENTALS

Harp, harpsichord, organ rental, one hour each day, per semestrs	\$10.00
Piano rental, one hour each day, per semester	7.50
Each additional hour per day, per semester	6.00
Practice room without a piano, one hour each day, per semester	4.50
Each additional hour per day, per semester	3.00
Locker rent (McKay Building and Eyring Science Center):	
1 semester	1.50
2 semesters	2.50
2 semesters and Summer Session	3.00
Key deposit	1.00
Replacement of lost key	1.50

DEPOSITS

Gymnasium towel check and padlock deposit (Maximum refund is \$2.50.)	\$ 3.00
Botany 550 (Plant Physiology)	2.00
Botany 706 (Experimental Ecology)	2.00
Botany 712 (Plant Nutrition)	2.00
Chemistry (each laboratory class)	1.00

Student Academic Services

Office of Admissions and Records

The Office of Admissions and Records is primarily a service office for all Brigham Young University students from the date they apply for admission until they are graduated from the University. It is a service agency also to parents, to the faculty, to the State, and to various agencies eligible to receive information regarding the records of these students.

Student academic services performed by the Office of Admissions and Records for the University include:

- Admission of students
- Registration of students
- Preparation of class schedules
- Assignment of instructional space
- Assignment of office space
- Evaluation of foreign student credit
- Graduation summary reports
- Academic grade reports
- General education program evaluation
- Transcripts of University credit
- Services to veterans
- Selective service information
- Statistical information
- Preparation of graduation lists

The dean of Admissions and Records has general supervision over the services listed above. It is his responsibility to initiate and to recommend regulations, policies, and procedures for implementing these student academic services and to administer the program of the Office of Admissions and Records as approved by the administration of the University.

Admission

Students who apply for admission and who are accepted by Brigham Young University are required to maintain ideals and standards in harmony with those of the Church of Jesus Christ of Latter-day Saints.

New Students from Foreign Countries. To be admitted to the University, a student from a foreign country must present proper credentials.

Foreign student applications received on or before April 15 will be considered for the first semester. Applications received on or before August 15 will be considered for the second semester. Applications for the summer session should be received on or before January 15.

Former B.Y.U. Students. All former B.Y.U. students who have discontinued school for one semester or more must apply for readmission. Readmission applications are furnished by the Office of Admissions and Records upon request.

Application for readmission should be made at least thirty days prior to registration.

Repeating Students. Registration packets are prepared for all students in attendance at the University the previous semester.

Summer School Students. The same admission requirements as already outlined apply to new summer school applicants.

Those students who were in attendance at either of the two previous summer sessions need not apply for readmission. Registration packets are prepared for them.

Notice of Acceptance. A notice of acceptance will be mailed promptly to all new and former students who have been accepted by the University. A student with deficiencies will receive an answer to his application for admission outlining the problems involved.

Registration

Registration Procedure. Details of the registration procedure are outlined in the class schedule issued each semester by the Office of Admissions and Records.

Time of Registration. Students are urged to register on the days set aside for registration (see University Calendar). A late fee is charged for each student who does not complete his registration on the specified days. The term "registration" refers to the entire procedure, including the payment of fees. A student may enroll in any class during the first three weeks of the semester if he has the permission of the instructor of the class and approval of the dean of the Graduate School.

Withdrawal from Classes. Students discontinuing registration at the University are required to clear their termination through the office of the dean of the Graduate School.

Any student withdrawing from individual classes shall clear with the dean of the Graduate School.

- a. If a student officially withdraws from a class the first three weeks of a semester, the permanent record will show no registration for the class in question.
- b. A student who is doing passing work in a course may drop the class between the third and twelfth week if such action is recommended by the teacher, the student's adviser, and the dean of the Graduate School, and if it is approved by the Academic Regulations Committee. A grade of "W" will be assigned for the class. A student who is doing failing work in a course may drop the class after the first three weeks if he has the approval of his adviser and the dean of the Graduate School and the teacher's signature. A grade of "WE" counts the same as an "E" grade in computing the grade-point average.
- c. If a student drops a class any time during the semester without officially withdrawing, he will receive a grade of "UW" (meaning unofficial withdrawal) in each course so dropped. This will indicate that the student has failed to clear officially with the University. A "UW" grade counts the same as an "E" grade in computing the grade-point average.

Withdrawal from Evening School Classes. Students who withdraw from classes for which they have registered in the Extension Services office must do so by notifying that office and completing withdrawal forms. An evening school student who does not properly withdraw will receive a failing grade.

Registration of Prospective Secondary Teachers. All certificates for teaching, counseling, supervising, administration, and library work in the public schools of Utah are granted by the State Department of Public Instruction.

When all requirements for state certification have been fulfilled, students of the University who are registered in any of its colleges or in the Graduate School will be recommended for certification by the dean of the College of Education. This recommendation will be given just as readily to prospective secondary teachers who have registered in other colleges as to those who have registered in the College of Education; the dean of the College of Education acts merely in an administrative capacity as the representative of the University. However, all students in the teacher certification program, regardless of their college registration, are required to have an assigned adviser in the College of Education to approve

the professional education sequence courses. Assignment of education advisers is made in the Teacher Certification Office.

Students who desire state certificates should make application with the dean of the College of Education through the Teacher Certification Office and not with the State Department of Public Instruction.

Completion of Registration. When the student has followed the prescribed registration procedure and has paid his fees, his registration is complete. The University will hold the student responsible for the completion of the courses for which he has been enrolled, unless he obtains approval for a change in registration or files an official withdrawal from the University.

Complete Withdrawal from the University. Any student withdrawing from the University after the third week must be doing passing work in his classes if he is to discontinue without academic failure.

Records

Classification of Students. At the beginning of each semester students will be classified for that semester.

A student who has completed all requirements for the bachelor's degree is classed as a graduate student. A graduate student or a student holding a bachelor's degree from a four-year accredited institution may register at Brigham Young University as follows:

- a. In the Graduate School under full degree-seeking status.
- b. In the Graduate School as a non-degree-seeking student.
- c. In an academic college of the University seeking a second bachelor's degree.

Credits. A student may have credit entered on the books of the University as follows:

- a. For work done in the regular courses offered by the institution.
- b. For work done in an accredited university when such credit is to be used toward a graduate degree at Brigham Young University. Credit from other schools should be filed with the Office of Admissions and Records upon application for admission to the University.

A fee of \$7.50 per credit hour is charged for special examination provided the total fee for any one subject does not exceed \$45.

By payment of an auditing fee, a student may obtain permission to audit courses of instruction. Under no circumstances can credit be obtained by means of special examinations for courses which have been audited.

Grading System. The present grading system uses the letters A, B, C, and D, to indicate that the student receives credit, and E to indicate that no credit is allowed.

The "A" grade is given only to students whose intellectual capacity and actual academic achievement are of exceptional quality. Work of a quality somewhat higher than average but not of exceptional quality receives a "B." "C" indicates that the student has completed classroom work, outside assignments, and examinations in an average manner.

Students who fail to reach the average academic achievement, but who do work of a quality still acceptable to the University are given a "D" grade. "D" credit is not acceptable toward a graduate degree. Students who fail to achieve work of minimum university quality receive an "E" grade. This grade mark draws no credit.

The letter "I" (incomplete) is used to indicate that the work is not yet completed. It should be given **only** when special arrangements for the completion of the specific work involved have been made between teacher and student. The "I" should **never** be given when the student has failed or is failing the course. A

grade of "I" changes automatically to "E" in the Office of Admissions and Records unless the work is completed within one year from date the grade is given.

The letter "T" is used to indicate satisfactory progress in thesis work for the amount of credit registered for in a given semester. The final grade is given when the thesis is completed. The grade "I" should not be used to indicate thesis or dissertation progress.

When a thesis or dissertation has been completed, any one of the following marks may be given: (1) "F" for failure; (2) A specific grade indicating that the thesis is acceptable to the department on a credit basis; or (3) "G" when the thesis has been satisfactorily completed but where the department desires to register no grade for thesis credit.

The letter "P" (passed) is used only in connection with the student teaching program of the College of Education of the University.

No final grade once recorded in the Office of Admissions and Records shall be changed except to correct the record when an error in calculation has been made by the teacher, in posting by the Data Processing Department, or in the Office of Admissions and Records, or by action of the Academic Regulations Committee. When such corrections need to be made, an official "Teacher Grade Change Authorization" form must be filled out; signed by the teacher, the chairman of the department, and the dean of the college; and sent directly to the Office of Admissions and Records.

Veterans' Service

All veterans should have their military experience evaluated for credit by applying to the Office of Admissions and Records.

Korean (P.L. 550). Veterans who had active military duty any time after June 27, 1950, and prior to January 31, 1955, are eligible for veteran benefits under Public Law 550, 82nd Congress.

All veterans must begin their schooling under the Korean G.I. Bill within three years of their date of discharge or separation from the service. New veterans must make an application for eligibility. This application can be made upon the veteran's release from active duty, DD 214. A certified copy of a marriage certificate and/or child's birth certificate are necessary for veterans claiming dependents.

Veterans transferring their G.I. benefits from other schools to B.Y.U. must bring a certificate of eligibility restricted to B.Y.U. This must be obtained by making application at the last school attended. Delay will be avoided by beginning transfer proceedings in advance.

War Orphans Education Program (P.L. 634). War orphans must bring a certificate of eligibility restricted to B.Y.U. before entering school under the War Orphan Program. This may be obtained by making application at the nearest Veterans' Administration regional office.

For further information concerning any educational benefits problem, please write to Veteran Coordinator, Abraham O. Smoot Building, Brigham Young University, Provo, Utah.

Student Personnel Services

The Student Personnel Services offer valuable assistance in the following areas that affect graduate students: academic standards, counseling service, foreign students adviser, health services, Indian students, student organizations and social life, and student publications.

Dean of Students. The dean of students is director of the Student Personnel Services. As such, he is expected to coordinate the agencies at work on student problems. He initiates and recommends to the administration needed policies and procedures in student life. It is his responsibility to administer the program recommended or approved by the administration in the various areas of Student Personnel Services.

Assistant Dean of Students. The assistant dean of students is the director of counseling and advising services for the University. As such he is director of the University Counseling Service which provides professional services as outlined in the Counseling Service description below. In addition, the assistant dean of students coordinates and provides leadership in the advising offered by the academic faculty, the housing staff, and other personnel of the University. His primary responsibilities are administering existing programs, providing training and education for counselors and advisers, and recommending policies and procedures in student counseling and advising for the University.

Counseling Service

The primary function of the Counseling Service is to help normal students make realistic decisions regarding their University careers. This organization provides the following services for graduate students: (1) counseling—educational, vocational, and other personal problems; (2) psychiatric; (3) testing; and (4) occupational information.

Counseling. The counselors offer assistance to each individual student, helping him make wise decisions in educational, vocational, and personal problems. The mature student will accept responsibility for the decisions arrived at in such counseling sessions.

Psychiatric Service. Limited psychiatric service is available for students with serious emotional problems. A psychiatric team composed of a psychiatrist, clinical psychologist, and a psychiatric social worker is available to make evaluations and recommendations concerning treatment. Limited psychiatric treatment is available for students who can be treated in a university setting. Such treatment is not available to all students, and referrals are often made to private agencies either in Utah or in the students' home towns. As in the case of all other counseling done in Counseling Service, psychiatric treatment is completely confidential.

Testing. Although basic tests of achievement, ability, interest, and adjustment are given to all new lower division students, upper division and graduate students may avail themselves of the tests. The testing service provides psychological test data for the use of counseling and registration advisers, placement tests for various academic groups at the University, and assistance in the preparation, administration, and scoring of subject-matter tests as requested by various departments in the University.

Occupational Information. A comprehensive, current collection of essential occupational information is maintained in the Counseling Service Library. Current catalogs of the major universities and technical schools are also on file. These materials are available to all students seeking information about particular vocational opportunities or information about employment in general.

Foreign Students Adviser

Services of the foreign students adviser are available to all students from countries outside of the United States. All alien students are expected to clear with him. Foreign students coming to the University should **report first to the Foreign Student Office** in the Abraham O. Smoot Administration and General Services Building.

Student Health Service

The Howard S. McDonald Student Health Center of University Hill accommodates the health services, comprised of a large out-patient clinic and in-patient unit for cases requiring bed care. The center functions 24 hours daily, 7 days a week during school terms and is available to any regularly enrolled full-time student whose fees include these services for the semester in which he is registered. Summer students are included. Medical care to all eligible students is limited to the facilities and personnel in the health center.

The following services are provided without extra charge:

1. An initial complete physical examination, required of all entering students, to be performed at the health center and to include screening chest x-ray, audiometry, and urinalysis. This examination is also mandatory for students re-entering after a two-year absence.
2. Consultation with general physicians and specialists, by appointment, in the health center during regular clinic hours, 8:30 a.m. to 4:30 p.m. This includes a specialty clinic in orthopedics, general surgery, gynecology, internal medicine, and chiropody, ear, nose and throat.
3. First-aid treatment any time during the 24 hours of each day.
4. Immunizations as required for small pox, diphtheria, or typhoid.
5. Physical therapy as recommended by a health center physician.
6. Routine laboratory tests.
7. Seven days of bed care in any one semester in the health center, as recommended by a health center physician, after which a minimum charge of \$2.50 per day is made.
8. Within the limits of its personnel and facilities, and at the discretion of the director, the treatment of chronic disease suffered by students.

Some services require an additional charge and are supplied to the student at cost. These are:

1. Meals while the patient is in the center.
2. Drugs on prescription of a health center physician.
3. Special diagnostic laboratory tests.
4. Special immunizations, i.e., poliomyelitis, influenza, etc.
5. X-rays other than "screening" films. The health center regularly employs the technical personnel to take and a radiologist to interpret the x-ray films. The student pays only the cost of the materials.
6. After-hour calls made by a physician in the clinic. The student pays \$2, the health center \$3 for each call. For house calls, the charges are double, both for the student and for the health center.
7. Rental of crutches.
8. Immediate notification of parents or guardian by the health center when a student is taken ill.

Services not available:

1. Major surgery or off-campus hospitalization or medical care.
2. Dental service.
3. Obstetric service.
4. Eye refractions, glasses, prostheses, hearing aids, etc.
5. Routine physical examinations.

STUDENT HEALTH AND ACCIDENT INSURANCE PROGRAM

To complement the services of the Student Health Center a supplemental insurance program is offered, which is available to all full-time students. This voluntary program is fully endorsed by the University and provides for a wide range of medical services at minimal costs. All students not otherwise protected by a health insurance plan are urged to accept this excellent plan specifically designed for our students. Full details are available from the health center.

University Standards

The maintenance of standards of honor and integrity, of graciousness in personal behavior, of Christian ideals in everyday living, of a high standard of morality, and of abstinence from alcohol and tobacco is required of every student.

Any pronouncement of disciplinary measures made by the President of the University becomes a part of these regulations. Violations of regulations may make the offender liable to suspension or expulsion from the University.

Other Services to Students

Placement Center

The Placement Center, located in the Abraham O. Smoot Administration and General Services Building, exists on the campus for the purpose of assisting graduating students and alumni to find desirable positions in their fields in business, industry, government, and education. This office works in close cooperation with deans and department chairmen.

The placement service includes a placement library where interested students may find books, articles, magazines, and brochures that will acquaint them with companies in which they may be interested and also books and pamphlets which will give advice on such matters as how to conduct oneself in an interview, how to write effective letters of application, how to find employment, etc.

All students are urged to register with the Placement Center early in the school year in which they will graduate so that that office may prepare early to give the most effective possible assistance in finding employment for each graduate.

Student Employment

In the Placement Center, assistance is given to students in finding part-time employment. This includes help not only in placing students in positions on the University campus but also in finding part-time employment off campus and in finding work for board and room.

Students are encouraged not to attempt to earn their entire way through school. Such a program leaves little time for academic work (see scholarships). Furthermore, it is important to note that there is a maximum limit on the number of hours which a student may work on campus.

Students needing employment are urged to register with the Placement Center as soon as possible after they arrive in Provo and are available for work.

Factors which weigh most heavily in deciding who shall receive leads for jobs are need, hours available, and possession of skills required by employers. Inasmuch as the number of students seeking part-time work is very high, those whose need is great are requested to report regularly at the Placement Center after filing their initial applications.

Students from foreign countries are required to obtain a work permit before they may take employment. Such students may receive assistance in obtaining the necessary permit from the foreign student adviser.

Religious Opportunities

Brigham Young University students have excellent opportunities for participation in religious activities. Among the means available are the following:

Brigham Young University Stakes. There are three Brigham Young University stakes. Each stake has several wards, usually between 200 or 300 members, organized specifically for students, providing maximum opportunity for active participation in the program of the Church. Spiritual growth and the development of a strong testimony are goals fostered by the stake and ward organizations, whose programs are closely integrated at all levels with that of the University.

All single students living away from home establish their membership records in one of the wards of the stake. Married students who attend the University may elect to have their membership records either in a ward of one of the B.Y.U. stakes or in nearby wards in which they reside. Membership records of students remain in B.Y.U. stakes until they terminate their schooling at the "Y." Married students who do not live in University housing may attend the University ward or the ward of their choice in the city.

Religious Organizations. In addition to the stakes and wards on campus we have several organizations that are primarily religious in nature and also are social and service groups.

Devotional Assemblies. Devotional assemblies, held each Wednesday, enable students to hear messages of spiritual power and depth from carefully chosen Church leaders. It is contemplated that during each year all members of the First Presidency and of the Quorum of the Twelve Apostles will address the student body in the Wednesday devotional assemblies.

Security and Traffic

The Security Office is a protective agency established for the benefit of students, faculty, and staff. It maintains effective liaison with the local police department, and is entrusted with the proper enforcement of campus rules and regulations. All matters concerning security or requiring police action should be referred to this office.

Another major responsibility of the Security Office is the control of campus vehicle traffic and parking. In each academic year University staff members and students who operate vehicles in Utah County regularly or occasionally shall register any such vehicles with the University Traffic Department. In the case of students this is a registration for identification only, not a parking permit. All staff members and students who plan to park on University parking lots between 7 a.m. and 5 p.m. on school days must display a parking permit on their motor vehicles. The student parking fee for motor vehicles is \$5 per year.

The Security Office also offers many other services to students and staff members, including a Lost and Found Department; the taking of fingerprints necessary for teaching certificates, government jobs, and A.F.R.O.T.C.; and an ambulance service in connection with the Student Health Center.

All campus roads will be closed on Labor Day each year to preserve the private ownership thereof.

Lyceums and Forums

Almost since its founding, Brigham Young University has been bringing to its students distinguished men and women in arts and letters. The lyceums are evening programs of cultural value. Forum assemblies, held each Monday morning, feature speakers and artists who can offer students a better understanding of our contemporary civilization. Following are a few of the scheduled appearances selected from the large number of programs during the 1961-62 year:

Geza Anda	Pianist
Frank Baxter	Authority on Shakespeare
Alistair Cooke	Correspondent, Manchester Guardian
Louis Fischer	Author
Jerome Hines	Bass-Baritone
Ambassador Chandra S. Jha	India's permanent representative to United Nations
Richard Lewis	Tenor
Lois Marshall	Soprano
Margaret Mead	Anthropologist
Ogden Nash	Poet of Light Verse
Paul Niven	Former Chief of Moscow Bureau of C.B.S.
The Archduke Otto	President, European Documentation and Information Center
Quintetto Boccherini, string ensemble	Pina Carmirelli, Filippo Olivieri, Nerio Brunelli, Arturo Bonucci, Luigi Sagrati
General Carlos Romulo	Former President of the United Nations Assembly
Henryk Szeryng	Violinist
Edward Teller	Nuclear Scientist
Utah Symphony Orchestra, two performances	Conducted by Maurice Abravanel

Student Housing

Campus Housing

The Office of Student Housing, functioning under the director of Student Housing, is established to assist students with their need for lodgings. All inquiries or administrative problems relating to housing needs should be referred to this office.

Applications

A student who plans to enroll at the University and live in a University residence hall should make inquiry at the earliest possible date to the Office of Student Housing. A housing application form will be sent upon request. A \$10 application fee should be enclosed with the completed application form when it is returned to the Office of Student Housing. A residence hall assignment and appropriate "agreement forms" are prepared on the basis of the date of receipt of the application form by the Housing Office.

Acceptance

The validating of any campus housing reservation is contingent upon the student's official acceptance and admission to the University.

Residence Halls for Women

Housing for 1,548 women is provided on campus in 24 Heritage Halls. These are apartment-type buildings. Each apartment consists of a combination kitchen-dining-study room arrangement, three bedrooms, and a bath. In addition, there are large living rooms, a recreation room, head resident apartment, and laundry and storage facilities in each building. Six girls occupy an apartment and live cooperatively, preparing their own meals. The apartments are completely furnished except for bedding, kitchen utensils, and dishes. The facilities are excellent and offer a high standard of living for college students. The approximate annual rate for these accommodations is \$250. Food is purchased cooperatively by the residents of each apartment.

Help in homemaking experiences of budgeting, buying, meal planning, and the selection, care, and construction of clothing is available from specialists who are assigned to Heritage Halls. In addition, a specialist is available to assist students in planning social activities, developing recreational skills, and learning wise use of leisure time.

The University operates four residence halls for women where board and room are provided. These four halls, Amanda Knight Hall, Knight-Mangum Hall, Budge Hall, and Merrill Hall, house 880 students. The halls, completely furnished, provide every modern convenience, including well-planned food service. A trained head resident lives in each hall. The approximate annual rate for these accommodations is \$595.

Each woman student who desires to live on campus should consider carefully the type of accommodations desired in view of her economic needs, time available for activities within her housing situation, and type of experience desired. Agreements are made for the year, and moving from one type of accommodation to another during the year cannot be arranged.

Residence Halls for Men

Board and room services for 72 men are provided in Allen Hall which is located one block from campus. It provides sleeping rooms, dining hall, living and social room, study room, head resident apartment, and adequate laundry and storage rooms.

Board and room services for 1,170 men are provided on campus in six new buildings known as Helaman Halls. These buildings form a beautifully designed residence hall development. There are five residence hall buildings conveniently grouped around an attractively planned and developed central building. Each residence hall accommodates 234 students, with two men sharing each bedroom. In addition, living rooms, study room, central shower areas, recreational rooms, adequate laundry and storage facilities, and a head resident apartment are found in each building. These halls provide some of the best student living experiences offered on any university campus. The central building features spacious dining rooms and a snack bar, providing the excellent food service for which B.Y.U. is noted. This building also contains beautiful living rooms, recreational areas, administrative offices, and other management facilities such as mail rooms, gun storage areas, and laundry and dry cleaning pick-up stations. The approximate annual rate for these accommodations is \$595.

Homes for Graduate Men

Board and room service for a limited number of single graduate men is available in large homes used exclusively for graduate students. They are adequately equipped and provide for the specialized needs of the graduate student. The approximate annual rate for these accommodations is \$545.

Apartments and Homes for Married Students

Family accommodations for 260 married couples and their children are provided in housing developments known as Wymount Village and Wyview Village. In addition to this, a new married students' housing project is under construction that will house another 462 families. All units in married-students' housing are assigned according to family size.

The Wymount Village consists of 110 apartments (efficiency, one-bedroom and two-bedroom units). These buildings were acquired from the federal government and moved to their present site following World War II. The monthly rental rates approximate \$38.50 for the efficiency units, \$41 for the one-bedroom units, and \$43.50 for the two-bedroom units. These rates include utilities. (Note: The Wymount Village project will be discontinued in the spring of 1963 to make way for campus growth and development. By this time, the new married-students' housing project will be completed and ready for occupancy).

The Wyview Village consists of 150 prefabricated homes purchased in 1956 from a federal government air base and moved to a site adjacent to the campus. There are 100 two-bedroom and 50 three-bedroom homes. The monthly rental rates approximate \$50 for the two-bedroom and \$55 for the three-bedroom homes. In addition, each family pays for their electricity.

The new married-students' housing project will consist of 462 apartments. Of this number there will be 168 one-bedroom units, 264 two-bedroom units and 30 three-bedroom units. The new project will include 24 buildings, an administration building, and three laundries. A series of four buildings will form quadrangles with grass courtyards in the center. The various complexes will form a trapezoid around a park and family recreational area. The buildings, constructed on a lift-slab principle, will be of painted concrete block with extensive use of white cast stone grill work and painted stucco paneling. Balconies or porches for all apartments will open on the courtyards. In addition to various numbers of bedrooms, apartments will include an all-tile bathroom, kitchen with modern appliances, have garbage disposal units, gas ranges and electric refrigerators, and an attractively decorated living room.

For the married family who wishes to live off-campus, the Residential Housing Office can assist in finding a suitable apartment in the Provo community. Approximately 1,000 apartment units are available to married couples.

Residential Housing

In addition to the University Residence Halls, there is University approved student housing in private homes in the communities of Provo and Orem which consists of sleeping rooms, apartments, light housekeeping, and board and room arrangements. To receive University approval these facilities must meet certain

minimum specifications. Students living in the community are expected to abide by the living standards of the University.

Listings

Up-to-date listings of approved facilities are maintained by the Residential Housing Office, 1271 North 900 East, Provo, Utah. This office is established to assist students upon their arrival in Provo to find suitable quarters if they desire to reside in the community. It is impractical for student to make arrangements with landlords by mail as listings change daily and many landlords like to interview their prospective tenants.

Rates

Rates for residential housing accommodations vary with the type of service provided, and consequently only a general indication can be given here. Sleeping rooms rent from \$15 to \$25 a month. Apartment accommodations run from \$17 to \$25 per month per student. Board and room is available at \$55 to \$65 a month. Apartments for married students can be obtained at a rate of approximately \$45 to \$70 per month.

Approved Housing

All students attending the University who are not living on campus or at home are required to live in University approved housing and to keep the University informed of any change of residence. Change of address cards are available in all housing offices and at the Information Booth.

Rental Agreements

A student planning to live either in campus housing or in off-campus residential housing may expect to sign a rental agreement for the accommodations he will occupy. He should be prepared to live by the terms of this agreement once he has signed it. Misunderstandings and financial loss can be avoided by a student if he will read and familiarize himself with the terms of the agreement before signing. All campus accommodations are available on an annual basis only.

Time of Arrival

Residence halls are not open to a student prior to the announced opening date, usually the day before freshman orientation. The University does not advise a student who is going to live in campus housing to arrive before that date. It is unwise for a student with nothing to do to live in a hotel or motel where there is no University supervision.

Through the listings from the Residential Housing Office, accommodations in the community may be obtained in a comparatively short time. Very little time is required for a student to unpack and get settled whether it be on or off campus. It is best to arrive during office hours—8:00 a.m. to 5:00 p.m.

Food Service

Regular meal service is provided for students at five different cafeterias on the campus. Four of these are operated as part of the board and room service of residence halls. It is possible for a student living off-campus to buy a meal ticket at reduced prices and eat in one of these places. The fifth cafeteria is in the Joseph Smith Building where meals are served at reasonable prices on a cash basis.

The University operates three snack bars, one in the Joseph Smith Building, a second in the George Albert Smith Fieldhouse, and a third in the Helaman Halls Cannon Center. Food is available in them throughout the day. Food may also be secured through vending machines located throughout the campus. Costs of meals and food service are kept as low as possible, consistent with sound operating management.

The University operates a creamery where milk, ice cream, and other dairy products may be purchased by students and faculty at very reasonable prices. Students preparing their own meals find this service desirable and economical.

List of Courses

General

Course Numbering System.

Course Number	Type of Course
500 to 599	Advanced undergraduate or graduate
600 to 799	Graduate

Credit Hour Designation. The three-number code for credit hours, listed in parentheses following the course title, has the following significance:

First number:	Semester hours of credit
Second number:	Class hours of lecture, recitation, or seminar meeting per week or minimum hours of individual study required per week
Third number:	Laboratory hours required per week or hours of field study or individual research per week

Cross Referencing of Courses. Each course is listed completely only once in the catalog. If the course may count in another department, it appears in a special grouping at the end of the course listing for that department.

Graduate Courses. Graduate credit is given for courses in the 500, 600, and 700 series if the student is registered in the Graduate School for these courses or if the student is a last semester senior and meets the Graduate School requirement for reserving these courses for graduate credit. No graduate credit is given for such courses with a lower grade than "C." No graduate credit is given for correspondence courses.

Reservation of Right to Change Courses. At the time of printing of this catalog, the University intends to give the courses listed herein, but reserves the right to eliminate or discontinue any of them or to add new courses.

Professors listed under each department title include members of the graduate faculty only.

Accounting

Professors: Andersen, Smith.

Associate Professor: Johnson.

Assistant Professor: Bryce B. Orton (chairman, 350 JK).

Requirements

A prospective major in accounting should have a minimum background of Accounting 302, 312, and those courses prerequisite thereto, or the equivalent thereof. A student may be accepted for major study in this field when he has completed Accounting 212, but he will be required to complete Accounting 301, 302, and 312 before taking courses for which they are prerequisites. These courses may not be applied toward the master's program.

The requirements for the master's degree may be completed under Plan A (requiring a thesis) or under Plan B (other work substituted for the thesis). Options I and II are available under either Plan A or Plan B. If Plan B is elected, the student's program must provide for a minimum of 32 semester hours of graduate courses or properly approved upper division courses, including at least one course which requires the writing of one or more major papers or reports (Accounting 515 or 575). In addition, the candidate for the master's degree must get

a satisfactory grade in a comprehensive written examination prior to scheduling the comprehensive oral examination.

Graduate Courses

- 501. Advanced Accounting.** (3:3:0) F.Su. Prerequisite: Accounting 302. Staff
Includes joint ventures, consignments, installments, receiverships, estates and trusts, statement of affairs, and municipal and governmental accounting.
- 502. Advanced Accounting.** (3:3:0) S. Prerequisite: Accounting 302. Staff
Home office and branch accounts and parent and subsidiary accounting.
- 512. Advanced Cost Accounting.** (2:2:0) S. Prerequisite: Accounting 312. Staff
Budgeting, standard costs, and cost analysis.
- 515. Controllership.** (3:3:0) F.Su. Prerequisites: Accounting 302 and 512. Staff
Organization of the controller's office, control techniques, interpretation of financial data, and policy formulation.
- 521. Advanced Tax Problems.** (2:2:0) F.Su. Prerequisite: Accounting 420. Staff
Advanced study of federal income tax, estate and gift taxes, and special problems in corporate taxation.
- 555. Advanced Data Processing.** (3:3:0) F. Prerequisite: Accounting 255. Staff
Principles governing design and installation of accounting systems and the selection of equipment for optimum performance in data processing cycles.
- 556. Electronic Computer Programming.** (3:3:1) F.S. Prerequisites: Accounting 132 and Statistics 221; recommended: Accounting 255. Staff
Basic computer logic, binary notation, operational coding, flow charting, iterative routines, subroutines, library programs, optimum coding, symbolic coding, and data processing application.
- 557. Advanced Computer Programming.** (2:1:2) S. Prerequisite: Accounting 556. Staff
Emphasis on the solution of practical problems in data processing. Individual work on the University's computer and comparison of various computers in current use.
- 565. Auditing Theory and Professional Ethics.** (3:3:0) S.S.Su. Prerequisite: Accounting 302. Staff
Principles and methods of public accounting, professional responsibility and conduct, and verification techniques of accounts and financial statements.
- 566. Auditing Practice.** (2:2:0) F.S. Prerequisite: Accounting 302. To be taken concurrently or after Accounting 565.
Practice in auditing techniques, including report writing and filings with regulatory bodies.
- 575. Theory of Accounts and Statements.** (3:3:0) S. Prerequisite: Accounting 202 or 212. Staff
A brief study of the history and development of accounting and financial statements, their meaning and interpretation. Problems in current accounting theory are considered.
- 586, 587. C.P.A. Problems.** (4:3:1 ea.) F.S. Prerequisites: Accounting 302, 420 and the following which should be taken before or concurrently: Accounting 501, 502, 565. Staff
Preparation for professional examination.
- 593. Reading and Conference.** (1-3:1-3:0) F.S.Su. Staff
Subject to be arranged with instructor.
- 596. Accounting Internship.** (1-3:0:Arr.) F.S.Su. Recommended: Accounting 565. Staff
Internship must be arranged in advance with department and company.

699. Thesis for Master's Degree. (1-6:0:0) F.S.Su.

Staff

This course number should also be used for noncredit continuing registration for students working on theses.

Agricultural Economics

Professor: Nelson.

Associate Professor: Corbridge (chairman, 370 HGB), Gardner.

Requirements

A graduate degree is not offered in agricultural economics, but graduate credit in the following courses may be applied toward a minor in a field closely related to agricultural economics.

Graduate Courses

525. Production Economics. (2:2:0) S. Prerequisite: Economics 346. Gardner
Principles concerning the optimum combination of productive resources within the farm firm and between firms.

580. Agricultural Policy. (2:2:0) S. Gardner
The theoretical and institutional setting of the agricultural industry, the objectives of farm policy, and the means of achieving these objectives. Includes a study of existing and proposed farm legislation.

590. Seminar. (1:1:0) S. Staff

595. Individual Readings. (1-3:Arr.:Arr.) F.S. Staff

597. Individual Research. (1-3:Arr.:Arr.) Staff

This course also counts in agricultural economics:

Statistics 531. Experimental Design. (2:2:0)

Agronomy

Professors: Farnsworth (chairman, 173 B), Hallam, Laws.

Associate Professor: Allred.

Requirements

A student preparing for graduate work in agronomy is urged to obtain a thorough knowledge of introductory physics, chemistry, mathematics, botany, bacteriology, and geology. Opportunity will be afforded for further study in some of these subjects after entering the Graduate School, but a student deficient in these foundation courses cannot expect to receive an advanced degree in the minimum time otherwise required.

The Agronomy Department has established the following minimum requirements for permission to study toward a Master of Science degree.

Satisfactory completion of the following undergraduate courses or their equivalents: Chemistry 111, 112, 113, 221, plus one year of upper division chemistry; Mathematics 111, 112, 213; Bacteriology 121; Physics 211, 212, 213, 214; Botany 101, 440. If a student is emphasizing crops, Botany 440 may be applied toward the graduate program and need not be completed as undergraduate work. If, however, this course has been taken as undergraduate work, more time will be afforded for graduate courses.

Graduate Courses

503. Soil Chemistry. (2:2:0) S. Prerequisite: Chemistry 221 or consent of instructor. Hallam

506. **Soil and Plant Analysis.** (3:1:6) S. Prerequisites: Agronomy 305, Chemistry 220 or 221. Farnsworth
Laboratory chemical analysis of soils and plant materials; use of radioactive materials in soil fertility research; use, care, and measurement of radioactive materials.
605. **Chemistry of Soil-Plant Relationships...** (3:3:0) F. Laws
607. **Soil Physical Condition.** (3:2:3) S. Laws
614. **Advanced Soil Microbiology.** (3:2:3) S. Prerequisites: Agronomy 305, Bacteriology 121, Chemistry 221. Hallam
659. **Advanced Plant Breeding.** (2:2:0) F. Allred
694. **Seminar.** (1:1:0) F.S.Su. Staff
697. **Research.** (Arr.) F.S.Su. Staff
698. **Agricultural Literature.** (Arr.) F.S.Su. Staff
699. **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff

Animal Husbandry

Professors: Morris (chairman, 280 HGB), Cannon.

Associate Professors: Richards, Shumway.

Assistant Professor: Hoopes.

Requirements

A student contemplating graduate study in animal husbandry must have received his bachelor's degree in this field or have completed courses with an equivalent background. His undergraduate courses should have included approximately 35 hours taken from the following subjects or their equivalent of which twenty hours made up his minor:

Bacteriology 121, 321, 331, 371, 501.

Botany 101, 376.

Chemistry 102, 111, 112, 113, 321, 284, 351, 352, 581, 582.

Statistics 221, 431.

Zoology 365, 376.

The student may select his minor field from among the following areas: Agricultural economics, bacteriology, botany, chemistry, education, or zoology.

All students seeking a master's degree in animal husbandry should enroll in English 99, a noncredit course, "Problems in Thesis Writing."

Graduate Courses

507. **Animal Nutrition.** (4:3:2) F. Morris
515. **Advanced Animal Breeding.** (3:3:0) S. Richards
560. **Advanced Dairy Production.** (3:2:3) S. Richards
571. **Advanced Poultry Practices.** (1-2:0:Arr.) F.S. Morris
592. **Seminar.** (2:2:0) F.S. Cannon
A critical review and analysis of current research, findings, and methods in animal agriculture.
601. **Experimental Animal Techniques.** (2:2:0) F.S. Prerequisite: Statistics 221. Cannon
660. **Advanced Livestock Management.** (2:1:3) S. Cannon

691, 692. Animal Husbandry Research. (1-2:0:3-6) F.S.	Staff
694, 695. Animal Husbandry Research. (1-2:0:3-6) F.S.	Staff
699. Thesis for Master's Degree. (2-6:Arr.) F.S.Su.	Staff

This course also counts in animal husbandry:

Statistics 531. Experimental Design. (2:2:0)

Archaeology

Professor: Jakeman.

Associate Professor: Christensen (chairman, 139 M).

Requirements

Admission as a graduate major in archaeology ordinarily requires the previous completion of an undergraduate major in this subject. Students desiring admission will be examined by the department. If admitted, the student may be required to take additional undergraduate courses which the department considers necessary to complete his background.

The following courses in this department are required of the candidate for the master's degree majoring in archaeology (unless previously taken for undergraduate credit): 551, 571, 690, and 695 or 696.

A thesis is required of the candidate for the master's degree majoring in archaeology. It may be either a field report or an interpretative study and must present worthwhile new data or concepts, must be of professional caliber, and must be suitable for publication.

Graduate Courses

500. History and Theory of Archaeology. (2:2:0) Not given this year. Prerequisite: Archaeology 200. Christensen

A survey of the historical development of archaeology, with special attention to the theoretical foundations upon which this discipline has been built.

551. Methods of Archaeological Research—General and Field. (4:0-2:4-8) F. Prerequisite: Archaeology 200. Christensen

The steps in an archaeological research project; an introduction to field and laboratory methods including student excavation of a prehistoric site in Utah Valley.

571. Methods of Archaeological Research—Interpretative. (2:2:0) S. Prerequisite: Archaeology 551. Christensen

Interpretation of empiric archaeological data as to culture units and their character and content; methods of chronological interpretation; and practice in archaeological ethnography and historiography.

590. Recent Developments in Archaeology. (4:2:6) Not given this year. Prerequisites: any two upper division courses in archaeology or consent of instructor. Jakeman

Includes individual reports in two of the following fields: Near Eastern-biblical, Mediterranean (Aegean-classical-Christian), northern European, African, central and eastern Asiatic, Oceanian, Middle American, South American, North American.

The emphasis of the following courses is on the two fields of archaeology bearing upon the fundamental problem of the origin of civilization in the Old and New Worlds; i.e., Near Eastern and Middle American-Andean archaeology.

A course in Akkadian, Egyptian hieroglyphics, or Hebrew inscriptions (see Department of Biblical Languages) should if possible be taken before the course "Library Research in Near-Eastern Archaeology" (695), while the course in the

reading of ancient Maya and Aztec hieroglyphics (631) should if possible be taken before the course "Library Research in Middle American-Andean Archaeology" (696).

- 631. Introduction to the Reading of Maya and Aztec Hieroglyphics.** (3:1:6) F. Prerequisite: an undergraduate minor in archaeology. Jakeman
- 641. Museum Methods and Teaching of Archaeology.** (3:1:6) F. Prerequisite: an undergraduate minor in archaeology. Christensen
In-service training in archaeological museum methods and in the teaching of archaeology.
- 651. Advanced Field Methods of Archaeology.** (5:0:15) Not given this year. Prerequisites: an undergraduate minor in archaeology and course 551. Staff
Further in-service training in field methods as a member of a Brigham Young University archaeological expedition to Middle America or the Near East.
- 690. Seminar in Historical Archaeology.** (2:2:0) F. Prerequisites: an undergraduate minor in archaeology and course 590. Jakeman
Problems in historical archaeology, particularly the archaeology of the scriptures.
- 695. Library Research in Near-Eastern Archaeology.** (2:0:6) F. Must be taken concurrently with Archaeology 690. Staff
Independent library research in oriental or biblical archaeology (Mesopotamian, Iranian, Egyptian, Syro-Palestinian, general oriental, or general biblical).
- 696. Library Research in Middle American-Andean Archaeology.** (2:0:6) F. Must be taken concurrently with Archaeology 690. Staff
Independent library research in Middle American or Andean archaeology (Mesoamerican or Peruvian archaeological and chronicled history, Mesoamerican hieroglyphic decipherment, or origins of Middle American-Andean civilizations).
- 697. Field Research.** (5-10:0:15-30) Not given this year. Prerequisite: Archaeology 651 (may be taken concurrently). Staff
Participation in an archaeological excavation in Middle America or the Near East, with opportunity for independent field research at the same or a nearby site.
- 699. Thesis for Master's Degree.** (1-6:0:15) S.Su. Prerequisite: Archaeology 571. Staff

Art

Professors: Andrus, deJong.

Associate Professors: Gunn (chairman, 315 E), Turner.

Fields

1. Painting and sculpture.
2. Design (crafts, commercial art, printmaking, interior design).

Requirements

A student expecting to major in painting and sculpture or design should have an adequate background in basic drawing, elementary design, and twenty semester hours of upper division work including art history. A student may take both his major and minor in the Department of Art. If he is deficient in foundation training, opportunity may be given to correct this deficiency after he enters Graduate School.

Graduate Courses

501. **Aesthetics.** (2:2:0) S. de Jong
Theoretical and practical criteria of aesthetic values.
544. **Portfolio Preparation.** (2:3:0) F. Prerequisites: Art 122, 239, 341, 342. Gunn
An analysis of individual strengths and weaknesses. Specialization opportunities provided in various areas of commercial design and display. Preparation of portfolio emphasized.
546. **Advanced Commercial Art.** (3:4:0) S. Prerequisite: Art 544. Gunn
Professional standards in a specialized field of commercial art emphasized. Students judged proficient by a faculty committee are given experience in a practicing agency.
580. **Mural Painting.** (2:4:0) F. Prerequisites: Art 310, 321 or 322. Staff
Historical backgrounds, design, and execution of murals.
582. **Mural Painting.** (2:4:0) S. Prerequisites: Art 310, 321 or 322. Staff
Historical backgrounds, design, and execution of murals.
586. **Studio Art.** (1-3:2-4:2-4) F.Su. Prerequisite: permission of department chairman. Staff
588. **Studio Art.** (1-3:2-4:2-4) S. Prerequisite: permission of department chairman. Staff
615. **Period Furnishings and Other Decorative Material for Interior Design.** (3:3:0) F. Staff
617. **Practical Problems in Interior Design.** (3:3:0) S. Staff
621. **Advanced Drawing and Painting.** (1-3:Arr.:Arr.) F. Andrus
622. **Advanced Figure Drawing and Painting.** (1-3:Arr.:Arr.) S. Andrus
624. **Advanced Landscape Painting.** (1-3:Arr.:Arr.) F. Turner
625. **Advanced Still Life Painting.** (1-3:Arr.:Arr.) S. Turner
627. **Pictorial Composition.** (1-3:Arr.:Arr.) F. Turner
629. **Pictorial Design.** (1-3:Arr.:Arr.) S. Staff
633. **Advanced Water Color Painting.** (1-3:Arr.:Arr.) F. Turner
635. **Advanced Aqueous Painting Media.** (1-3:Arr.:Arr.) F. Turner
639. **Advanced Layout.** (1-3:Arr.:Arr.) F. Gunn
642. **Advanced Illustration.** (1-3:Arr.:Arr.) S. Gunn
650. **Advanced Relief and Intaglio Printmaking.** (1-3:Arr.:Arr.) F. Andrus
652. **Serigraphy and Color Lithography.** (1-3:Arr.:Arr.) S. Andrus
656. **Advanced Sculpture.** (1-3:Arr.:Arr.) F. Staff
658. **Advanced Sculpture.** (1-3:Arr.:Arr.) S. Staff
665. **Advanced Ceramics.** (1-3:Arr.:Arr.) F.S. Staff
666. **Advanced Metal and Jewelry Design.** (1-3:Arr.:Arr.) F.S. Staff
668. **Teaching Art.** (1-3:Arr.:Arr.) S. Gunn
671. **Survey of Recent Studies in Art Education.** (1-3:Arr.:Arr.) F. Gunn
674. **Advanced Portrait Painting.** (1-3:Arr.:Arr.) F. Andrus
676. **Advanced Figure Painting.** (1-3:Arr.:Arr.) S. Andrus

680. Advanced Mural Design and Painting. (1-3:Arr.:Arr.) F.	Staff
682. Advanced Mural Design and Painting. (1-3:Arr.:Arr.) S.	Staff
686. Studio Art. (1-3:Arr.:Arr.) F.	Staff
688. Studio Art. (1-3:Arr.:Arr.) F.	Staff
690. Color. (2:2:0) F.	Andrus
692. Color. (2:2:0) S.	Andrus
695. Seminar. (1:1:0) F.S.	Staff
699. Thesis for Master's Degree. (1-6:Arr.:Arr.) F.S.	Staff

Bacteriology

Professors: Beck, Larsen.

Associate Professor: Donaldson.

Assistant Professors: Sagers (chairman, 110 B), Hoskisson.

Requirements

Adequate preparation for graduate work in the Department of Bacteriology presupposes satisfactory training in the physical and biological sciences. If a student is deficient in foundation courses, opportunity will be given after entering Graduate School to correct these deficiencies; however, such a student will not be able to receive the advanced degrees in the minimum time required of more qualified candidates. Prior to acceptance as a graduate major in the Department of Bacteriology, credit will be evaluated with particular emphasis placed on the applicant's training in qualitative, quantitative, organic, and biological chemistry; mathematics; botany; zoology and physics.

Master's Degree

All students receiving advanced degrees in bacteriology are required to have completed the following courses or equivalents: Bacteriology 331, 501, 511, 531, 551; one year of inorganic college chemistry; one year of organic chemistry; one semester of quantitative analysis; one year of biochemistry; one year of college physics; and Mathematics 111.

Doctor of Philosophy Degree

Prior to selection of a dissertation subject and assignment to a research adviser, the student must pass a written qualifying examination in the following areas: (a) general microbiology, (b) pathogenic microbiology, (c) immunology, (d) virology, (e) bacterial physiology, and (f) bacterial genetics. This examination will normally be given after one year of graduate study, or in case the student has received the master's degree, at the beginning of work for the Ph.D. degree. After satisfactory completion of the qualifying examination the student will be assigned a permanent advisory committee, the chairman of which will be his major research adviser.

A comprehensive oral examination will be taken not earlier than one year after completion of the qualifying examination. Prior to admission to the comprehensive examination the student must have satisfactorily completed the language requirements and courses in differential and integral calculus and physical chemistry.

Graduate Courses

- 501. Pathogenic Microbiology.** (5:3:6) S. Prerequisite: Bacteriology 331 or consent of instructor. Larsen

A study of the characteristics of pathogenic bacteria, viruses, rickettsia, yeasts, and molds.

- 511. Immunology.** (4:2:6) F. Prerequisite: Bacteriology 501 or consent of instructor. Donaldson
Theories of immunity; training in serological methods.
- 521. Industrial Microbiology.** (2:2:0) F. (Offered 1962-63 and alternate years) Prerequisites: Bacteriology 331 and biochemistry. Larsen
The rôle of microorganisms in the production of such products as acids, alcohols, antibiotics, vitamins, and enzymes.
- 522. Industrial Microbiology Laboratory.** (1:0:3) F. (Offered 1962-63 and alternate years) Prerequisite: completion of or concurrent registration in Bacteriology 521. Larsen
- 531. Virology.** (2:2:0) S. Prerequisite: Bacteriology 501. R. Sagers
Characteristics of viruses and virus diseases.
- 532. Virology Laboratory.** (2:0:6) S. Prerequisite: Completion of or concurrent registration in Bacteriology 531. R. Sagers
- 541. Cultivation and Nutrition of Bacteria.** (2:0:6) F. (Offered 1963-64 and alternate years) Prerequisite: Bacteriology 331. R. Sagers
A laboratory study of selective enrichment techniques, fundamental nutritional requirements, and growth properties of the major taxonomic groups of bacteria.
- 551. Advanced Microbiology.** (3:3:0) S. Prerequisite: Bacteriology 331. Beck
- 552. Advanced Microbiology Laboratory.** (1-2:0:3-6) S. Prerequisite: completion of or concurrent registration in Bacteriology 551. Beck, Bradshaw
- 561. Radioactive Tracer Techniques in Biology.** (2:0:6) F. (Offered 1962-63 and alternate years) Prerequisite: consent of instructor. Beck
- 581. History of Bacteriology.** (1:1:0) F. (Offered 1963-64 and alternate years) Prerequisite: senior or graduate status. Larsen
- 611. Advanced Immunology.** (2:2:0) S. (Offered 1962-63 and alternate years) Prerequisite: Bacteriology 511. Donaldson
- 651. Special Topics in Bacterial Metabolism.** (2:2:0) F. Prerequisite: Bacteriology 552. Beck, Bradshaw, R. Sagers
- 661. Bacterial Genetics.** (2:2:0) F. (Offered 1963-64 and alternate years) Prerequisites: Bacteriology 331, a course in general genetics, and Chemistry 582 or equivalent. Bradshaw
A study of genetic processes in bacteria and viruses, with special emphasis on recombination, transduction, mutation, replication mechanisms, and related topics.
- 662. Bacterial Genetics Laboratory.** (1:0:3) F. (Offered 1963-64 and alternate years) Prerequisite: completion of or concurrent registration in Bacteriology 661. Bradshaw
- 691. Graduate Seminar.** (1:1:0) F.S. Staff
- 695. Research to Furnish Data for Thesis.** (1-10:Arr.:Arr.) F.S. Staff
- 699. Thesis for Master's Degree.** (1-4:Arr.:Arr.) F.S. Staff
- 795. Doctoral Candidate Research.** (Arr.) F.S. Staff
- 799. Dissertation for the Ph.D. Degree.** (Arr.) F.S. Staff

This course also counts in bacteriology:

Agronomy 614. Advanced Soil Microbiology. (3:2:3)

Bible and Modern Scripture

Professors: Done, Ludlow, Sperry, Yarn.

Associate Professors: Barron (chairman, 316 JK), Anderson, Andrus, Clark.

Assistant Professors: Cowan, Rasmussen, Turner.

The Department of Bible and Modern Scripture offers training leading to the Master of Arts and Doctor of Philosophy degrees. Before a student is admitted on a degree-seeking basis, the chairman of the Department of Bible and Modern Scripture will appoint a committee of the graduate faculty to interview him and evaluate his preparation and fitness for a graduate program. A detailed statement of the requirements for these degrees may be obtained upon request from the chairman of the Department of Bible and Modern Scripture.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility for knowing and fulfilling these regulations and requirements rests with the student.**

Master of Arts Degree

After acceptance on a degree-seeking basis, the student must fulfill the following requirements under the direction of his advisory committee:

- A. Attain a minimum of thirty semester hours of credit in approved courses with a grade of "B" or better in each course.
- B. Demonstrate proficiency in the scholarly use of one approved foreign language.
- C. Write an acceptable thesis embodying the results of directed research.
- D. Complete successfully an oral examination which will probe the subject-matter of his major and minor areas of study and the soundness of his thesis.

Doctor of Philosophy Degree

Applicants for the doctorate must demonstrate a proficiency in one tool language and an adequate subject-matter background to be considered for admission to the department on a degree-seeking basis. After acceptance on a degree-seeking basis, the student must fulfill the following requirements under the direction of his advisory committee:

- A. Demonstrate proficiency in the scholarly use of at least two foreign languages.
- B. Attain a minimum of 72 hours of approved credit with a grade of "B" or better in each course. The following "core" courses are required of all students: Bible 501, 502, 503, 511, 512, 411; Scripture 527, 621, and 624.
- C. Pass four four-hour comprehensive examinations demonstrating a thorough mastery of the subject-matter of his major and minor fields.
- D. Write an acceptable dissertation embodying the results of original research and constituting a valuable addition to scholarly knowledge.
- E. Complete successfully an oral examination of the scholarship and writing exhibited in the candidate's dissertation.

BIBLE

Graduate Courses

501. Analysis of the Old Testament: The Pentateuch and Historical Books. (3:3:0) F.S.Su. Staff
502. Analysis of the Old Testament: Prophetic Books. (2:2:0) S. Staff
503. Analysis of the Old Testament: Poetic and Wisdom Literature. (2:2:0) S. Staff
511. Paul's Life and Letters. (2:2:0) F. Anderson, Sperry, Turner

512. **The General Epistles and the Apocalypse.** (2:2:0) S.
Anderson, Sperry, Turner
513. **New Testament Times.** (2:2:0) S.Su. Anderson, Sperry
601. **History of the Hebrews.** (3:3:0) F.S. Rasmussen, Sperry
604. **The Literature of the Old Testament.** (2:2:0) F.S. Rasmussen, Sperry
605. **Canon and Text of the Old Testament.** (2:2:0) S. Staff
606. **The Apocrypha and Pseudepigrapha.** (2:2:0) S.Su. Sperry
607. **Religion of the Old Testament.** (2:2:0) F.Su. Nibley
608. **Cultural and Religious Patterns of the Ancient Near East.** (2:2:0) S.Su.
Sperry
610. **Early Christian Literature.** (2:2:0) F.Su. Staff
611. **Formation of the New Testament: Text and Canon.** (2:2:0) S.Su.
Ricks, Sperry
612. **Textual Criticism of the New Testament.** (2:2:0) S.Su. Staff
709. **Seminar: Old Testament.** (2:2:0) F.S.Su. Staff
710. **Seminar: New Testament.** (2:2:0) F.S.Su. Staff
711. **Readings in Greek: The Gospel and Acts.** (3:3:0) F. Prerequisite: ability to pass departmental examination in Greek. Staff
712. **Readings in Greek: Paul's Letters.** (3:3:0) S. Prerequisite: ability to pass departmental examination in Greek. Staff
713. **Readings in Greek: General Epistles and the Apocalypse.** (3:3:0) S.Su. Prerequisite: ability to pass departmental examination in Greek. Staff

SCRIPTURE

Graduate Courses

527. **History and Doctrines of the Pearl of Great Price.** (3:3:0) F.S.Su.
Andrus, Clark
621. **Analysis of the Book of Mormon.** (3:3:0) F.S.Su. Ludlow, Ricks, Sperry
624. **Analysis of the Doctrine and Covenants.** (3:3:0) F.S.Su. Andrus, Doxey
627. **Seminar: Pearl of Great Price.** (2:2:0) F.S.Su. Andrus, Clark
699. **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Andrus, Doxey
721. **Seminar: Book of Mormon.** (2:2:0) F.S.Su. Ludlow, Ricks, Sperry
724. **Seminar: Doctrine and Covenants.** (2:2:0) F.S.Su. Andrus, Doxey
728. **Readings in Modern Scripture.** (1-2:Arr.:Arr.) F.S.Su. Staff
799. **Doctoral Dissertation.** (Arr.) F.S.Su. Staff

Biblical Language

Professors: Sperry.

Assistant Professors: Rasmussen (chairman, 19 PHP), E. Ricks.

Instructor: Meservy.

A graduate major is not offered at this time by the department proper, but some courses, beyond the elementary Hebrew grammar course, may be applied to-

ward a graduate degree in related fields, such as Bible and Modern Scripture. The first two years of Hebrew are prerequisite to most of the other offerings of the department; they may be taken during the student's undergraduate years.

For lower division courses in the related field of modern Hebrew as spoken in Israel today, see Hebrew 101, 102 in the Languages Department. Students completing these courses may enter the Biblical Hebrew studies at the 592 or 593 level, depending upon their aptitude and achievement.

Students interested in certain Scriptural and religious fields should consider also such offerings of the Languages Department as Greek and Latin.

Graduate Courses

591, 592. Biblical Hebrew. (5:5:0 ea.) F.S. No prerequisites.

Meservy, Rasmussen

A beginning course in the classical Hebrew of the Old Testament. Valuable for student and teachers as a tool for interpreting and appreciating the Bible.

593, 594. Hebrew Grammar and Selected Readings. (3:3:0 ea.) F.S. Prerequisite: Biblical Languages 591, 592 or equivalent acquaintance with Hebrew.

Meservy, Rasmussen

690. Studies in the Hebrew Old Testament. (3:3:0) F. Prerequisite: two years of Hebrew or consent of instructor.

Meservy, Sperry, Rasmussen

691. Studies in Hebrew. (3:3:0) S. Prerequisite: Biblical Languages 690.

Meservy, Rasmussen, Sperry

693, 694. Biblical Aramaic and the Targums. (2:2:0 ea.) Prerequisite: at least one year of Biblical Hebrew.

Meservy, Sperry

791. Syriac. (5:5:0) Prerequisite: two years Biblical Hebrew or one year Aramaic.

Meservy, Sperry

792. Syriac. (3:3:0) Prerequisite: Biblical Languages 791.

Meservy, Sperry

793, 794. Akkadian. (2:2:0 ea.) Prerequisite: two years Biblical Hebrew.

Meservy, Sperry

797, 798. Ugaritic. (3:3:0) Prerequisite: two years Biblical Hebrew. Meservy
The alphabet, vocabulary, and grammar of the language of the Ras Shamra tablets. Valuable for its parallels to Biblical Hebrew.

Botany

Professor: Harrison (chairman, 232 B).

Associate Professors: Christensen, McKnight, Stutz.

Assistant Professors: Moore, Murdock, Welsh.

Requirements

A student working toward a graduate degree in botany should have a basic understanding of general botany, taxonomy, genetics, morphology, physiology, and ecology. It is assumed that he will also have training in mathematics, chemistry, physics, bacteriology, soils, and zoology adequate for advanced study in the area of his specialization. Where deficiencies exist provision will be made for correcting them.

An advisory examination is required of all candidates for graduate degrees. The examination is to provide a means for evaluation of the student's preparation in the major fields of botany. This examination should be completed by the end of the first full semester of graduate study.

Master's Degree

The requirements for the master's degree in botany are those listed above and the general requirements of the Graduate School.

Doctor of Philosophy Degree

In addition to the general Graduate School requirements for the Doctor of Philosophy degree, students in the Department of Botany will be required to satisfy the following special requirements.

One major area of specialization within the department is required. One minor area of specialization within the department, consisting of at least 15 semester hours, and one minor sequence outside the department, consisting of at least 15 hours, are required.

Students will be required, normally, to complete a master's degree before undertaking the doctorate program.

The comprehensive examination may be taken after at least one full year of graduate study and after the language examination has been passed. It will be on oral examination and will explore thoroughly the student's background in the major areas of botany, including basic undergraduate work when this seems desirable.

The student will conduct original research that makes a contribution to knowledge, and present a satisfactory dissertation.

Graduate Courses

501. **Histological Techniques.** (2:0:6) F. Prerequisites: Botany 101 or Zoology 105, and Botany 201. Staff
510. **Advanced Taxonomy.** (3:1:6) S.Su. Prerequisites: Botany 110 and 176 or consent of instructor. Welsh
525. **General Cytology.** (3:2:3) F. Prerequisite: Botany 101 or Zoology 105. Moore, Stutz
550. **Plant Geography.** (3:2:3) F. (Offered alternate years) Staff
Plant distribution and the origin of plant communities in the light of present and recent geological conditions.
561. **Watershed Management.** (2:2:0) S. (Field trips to be arranged) Murdock
591. **Seminar.** (1:1:0) F. Staff
598. **Special Problems.** (1-3:0:3-9) F.S. Staff
615. **Agrostology: Taxonomy and Ecology of Grasses.** (2:1:5) F. Prerequisite: Botany 110; recommended: Botany 176. Harrison
Classification and ecology of grasses. Important forage species are emphasized.
630. **Angiosperm Morphology.** (4:3:3) F. (Offered alternate years) Prerequisite: Botany 105 or 331. Moore
A detailed study of the flowering plants, emphasizing relationships.
634. **Morphogenesis.** (3:2:3) F. Recommended: training in the following areas: taxonomy, anatomy, and physiology or biochemistry. Moore
The problem of development of form in organisms, with emphasis on plants.
635. **Advanced Mycology.** (4:2:6) S. Prerequisites: Botany 101 or Zoology 105, and Botany 335. McKnight
638. **Fleshy Fungi.** (2:1:3) Su. Prerequisite: a laboratory course in bacteriology, botany, or zoology. McKnight
639. **Paleobotany.** (3:2:3) S. Prerequisite: Botany 101 or 105. Staff

- 641. Physiology of Fungi and Algae.** (4:3:3) F. (Offered alternate years) Pre-requisites: Botany 335, 440. Staff
- 655. Field Ecology.** (1-3:Arr.:Arr.) S.Su. (Extended field trip) Prerequisite: consent of instructor. Murdock
Ecological field work in forests and rangelands.
- 676. Cytogenetics.** (3:3:0) F. Prerequisite: Botany 525. Stutz
- 678. Speciation.** (3:3:0) S. Prerequisite: genetics or consent of instructor. Stutz
- 697, 698. Special Problems.** (1-3:0:3-9) F.S. Staff
- 699. Thesis for Master's Degree.** (1-6:0:3-12) F.S. Staff
- 740. Advanced Plant Physiology I.** 3:2:3) S. Prerequisite: Botany 440. Harrison
- 741. Advanced Plant Physiology II.** (3-4:2-3:3) F. Prerequisite: Botany 440. Harrison
- 742. Plant Nutrition and Growth.** (3:2:3) F. Prerequisites: Botany 440, Chemistry 111, 112; recommended: organic chemistry. Harrison
- 750. Grassland and Desert Ecology.** (3:3:0) S. Prerequisite: consent of instructor. Christensen, Murdock
- 752. Forest Ecology.** (3:3:0) F. Prerequisite: consent of instructor. Christensen, Murdock
- 760. Conservation of Natural Resources.** (1-3:1-3:0-3) F. Prerequisite: consent of instructor. Christensen, Murdock
- 776. Population Genetics.** (3:3:0) S. Prerequisite: Botany 176 or Botany 376 or Zoology 376. Stutz
- 795. Research for Doctoral Degree.** (2-4:0:6-12) F.S. Staff
- 799. Doctoral Dissertation.** (Arr.) F.S. Staff

Business Education

Professors: Christensen, Peterson.

Associate Professors: Crandall, Croft.

Assistant Professor: Bell (chairman, 351 JK).

Admission

To be admitted to full degree-seeking status, a student must have received the baccalaureate degree with a major in business teacher education. He must also have satisfied established state requirements for a certificate to teach business subjects in the public schools.

Entrance into the program is subject to approval by a departmental graduate committee. A prospective graduate major is required to obtain departmental approval of his program before registering.

Requirements

Upon achieving degree-seeking status, the student will be assigned by the director of the department's graduate program to an advisory committee. It will be the committee's task to assist the student in identifying an appropriate program of studies leading to the master's degree.

The student will be recommended for the master's degree in business education when the following minimum requirements have been satisfied.

1. Successful completion of 30 hours of approved graduate study as follows:

business education	15 hours
minor field (must be in the College of Business)	9 hours
electives (including thesis)	6 hours
Total	30 hours
2. Presentation in final form of an acceptable research project.
3. Satisfactory defense of research project and evidence of adequate professional preparation by means of an oral examination.

Graduate Courses

- 570. Cooperative Business Experience Internship.** (4:4:4) F.S.Su. Staff
 Through cooperation of business and industry, this work-education program is open to the following qualifying majors: office management, executive assistant, and business teacher.
- 590. Seminar.** (2:2:0) F.S.Su. Staff
- 615. Methods of Instruction in Business Education: Typewriting and Shorthand.** (2:2:0) F. Staff
 A critical evaluation of classroom methods, psychology of learning, and findings of research pertaining to improvement of instruction in typewriting, shorthand, and related subjects.
- 620. Methods of Instruction in Business Education: Bookkeeping and Economic Education.** (2:2:0) S. Staff
 An analysis of course content, classroom methods, and teaching materials pertaining to improvement of instruction in bookkeeping and economic education.
- 630. Current Developments Influencing the Curriculum and Content of Business Education.** (2:2:0) F. Staff
 An examination of recent technological developments, such as automation in business, and an analysis of their effect on the curriculum content of business education.
- 635. Analysis of Recent Research in Business Education.** (2:2:0) S. Staff
 Investigation of recent developments in research in business education, including an analysis of research techniques.
- 640. Trends of Thought in Business Education.** (2:2:0) S. Staff
 Fundamental ideas that have shaped the business curriculum in the United States and basic issues that have affected purposes, trends, and control of business education in public and private institutions.
- 665. Practicum in Business Education.** (2:2:0) F.Su. Staff
 The planning and development of practical and creative projects in the field of business education, individually or in groups. Experienced teachers are permitted to use actual school problems and projects.
- 675, 676. Business Education Workshop.** (2:2:0 ea.) Su. Staff
 A series of clinics in selected business subjects.
- 694. Independent Readings.** (1-4:1-4:0) F.S.Su. Staff
- 698. Field Project for Master's Degree.** (1-4:1-4:0) F.S.Su. Staff
- 699. Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff

These courses also count in business education and office management:

Accounting 555. Advanced Data Processing. (3:3:0)

Business Management 420. Human Relations in Administration I. (3:3:0)

Business Management 480, 481. Executive Lectures. (1:1:0)

Business Management

Professors: Christensen, Oaks, Smith, Taylor.

Associate Professors: McKay (MBA director, 370 JK), Gardner, Johnson, Mangum, Nielson, Pratt (chairman, 395 JK).

Assistant Professor: Monsen.

MASTER OF BUSINESS ADMINISTRATION PROGRAM

Academically, the MBA program is inter-disciplinary in nature, and the MBA faculty is drawn from departments throughout the University.

The MBA program is a full two-year integrated experience which develops professional competence and maturity in the following areas: administration, operations, quantitative analysis, environment, and communication and research. The objective of the program is to qualify students for responsibility and creative leadership in an increasingly complex and dynamic business society. It is anticipated that the student work-load in the program will average 60 to 72 hours per week, and the first-year students are discouraged from taking outside employment. Financial assistance is available to those who qualify. Students may enter the program only in September each year.

Admission

Applicants with a bachelor's degree will be considered regardless of their undergraduate major. Those holding degrees in fields other than business are particularly urged to apply. Admission is based on an evaluation of a completed application, three references, college transcripts, test results and, if practical, personal interviews. Evidence of future administrative capability is considered as well as past performance. The closing date for applications is May 1, except by special petition. Detailed information concerning the admissions procedure may be secured from the MBA Program, Graduate School, Brigham Young University, Provo, Utah.

Placement

A special placement program is being organized to assist students in beginning and developing their careers.

Preparation

Students contemplating an MBA degree are advised to take a broad program in their undergraduate work, and to confer with members of the MBA faculty. Students with an undergraduate major in business management will be accepted in the MBA program only by special permission.

Graduate Courses

- 601. **Administration I and II.** (6:3:0) F.S. Prerequisite: admission to the MBA program. Covey
- 605. **Administration III.** (3:3:0) F. Prerequisite: Business Management 601. Covey, McKay
- 607. **Administration IV.** (3:3:0) S. Prerequisite: Business Management 605. Covey, McKay
- 611. **Operations I and II.** (12:6:0) F.S. Prerequisite: admission to the MBA program. McKay, Pratt
- 615. **Operations III.** (3:3:0) F. Prerequisite: Business Management 611. McKay, Pratt
- 617. **Operations IV.** (3:3:0) S. Prerequisite: Business Management 615. McKay, Pratt
- 621. **Quantitative Analysis I and II.** (12:6:0) F.S. Prerequisite: admission to the MBA program. Gardner, Nielson, Smith

- 625. Quantitative Analysis III.** (3:3:0) F. Prerequisite: Business Management 621.
Gardner, Nielson, Smith
- 627. Quantitative Analysis IV.** (3:3:0) S. Prerequisite: Business Management 625.
Gardner, Nielson, Smith
- 631. Environment I and II.** (6:3:0) F.S. Prerequisite: admission to the MBA program.
Mangum, Monsen
- 635. Environment III.** (3:3:0) F. Prerequisite: Business Management 631.
Mangum, Monsen
- 637. Environment IV.** (3:3:0) S. Prerequisite: Business Management 635.
Taylor
- 641. Communication and Research I and II.** (4:Arr.:Arr.) F.S. Prerequisite: admission to the MBA program.
Christensen
- 645. Communication and Research III.** (3:Arr.:Arr.) Prerequisite: Business Management 641.
Christensen
- 647. Communication and Research IV.** (3:Arr.:Arr.) Prerequisite: Business Management 645.
Christensen

MASTER OF SCIENCE AND MASTER OF ARTS DEGREES

Applications are no longer accepted for the Master of Science and Master of Arts degrees. Graduate students who are working toward the degree of Master of Science or Arts will continue on with their programs. A minor will still be offered in the fields of business management, finance and banking, marketing, industrial management, and industrial relations and personnel management for students majoring in other fields provided the student has taken or is willing to take the necessary prerequisites to provide an adequate foundation for his proposed graduate minor in this department.

Graduate Courses

- 521. Human Relations in Administration II.** (3:3:0) S. Prerequisite: Business Management 420 or consent of instructor.
Covey
An illuminating conceptual framework for understanding group processes is developed to identify factors contributing to understanding, growth, and cooperation in group work and leadership.
- 552. Advanced Corporation Finance.** (3:3:0) F.S. Prerequisite: Business Management 348 or consent of instructor.
Daines
Financial problems connected with organization of corporations, underwriting, and sale of securities; management, expansion, and organization of corporations that are not successful.
- 555. Problems in Advertising.** (3:3:0) S. Prerequisite: Business Management 455 or consent of instructor.
Staff
Problems in the use of advertising as part of management's overall marketing strategy. Stresses planning, coordination, control, and evaluation of effectiveness.
- 556. Problems in Retail Store Management.** (3:3:0) S. Prerequisite: Business Management 456 or consent of instructor.
Sessions
Problems involved in policy formulation and implementation and in the coordination of store activities through the use of controls and standards.
- 557. Problems in Sales Management.** (3:3:0) F.S. Prerequisite: Business Management 347 or consent of instructor.
Pratt
Problems in sales methods, sales organization, management of sales force (selection, training, compensation, and supervision), and sales planning and control.
- 558. Marketing Research.** (3:3:0) F.S. Prerequisites: Business Management 347 and senior standing.
Oaks
Uses, methods, and techniques of marketing research.

- 559. Advanced Problems in Marketing Research.** (1-3:Arr.:Arr.) F.S. Prerequisites: Business Management 558 and consent of instructor. Oaks
Advanced methods of research and their application to marketing problems.
- 561. Problems in Production—Manufacturing Processes.** (5:4:2) F. Prerequisites: Business Management 340, Drawing 110, and senior or graduate standing in the department. Other by approval of instructor. Staff
Part one of a one-year course dealing with problems encountered by production personnel. Considers: (1) the materials and manufacturing processes commonly used in industry; and (2) Process analysis as applied to work simplification and plant layout. Utilizes business cases, films, and field trips.
- 562. Problems in Production—Manpower Management and Production Control.** (5:6:0) S. Prerequisite: Business Management 561. Staff
Part two of a one-year series. Deals with time study, job evaluation, wage administration, manpower planning, and production control.
- 565. Life Insurance.** (2:2:0) S. Prerequisite: Business Management 450 or consent of instructor. Staff
Advanced study of the nature and functions of life insurance and its application to personal and business needs.
- 566. Property and Casualty Insurance.** (2:2:0) S. Prerequisite: Business Management 450 or consent of instructor. Staff
Advanced study of the functions of fire and marine insurance, casualty insurance, and corporate building.
- 567. Real Estate Administration.** (2:2:0) S. Prerequisite: Economics 454 or consent of instructor. Staff
Mechanisms of real estate finance, principles of mortgage risk analysis, role of government agencies, and problems of property development.
- 569. Personnel Management.** (3:3:0) S. Prerequisites: Economics 345 and Business Management 420, or permission of instructor. McKay
Management of the personnel function: job evaluation, organization planning, employee selection, training, compensation, morale, labor relations, and management development. Method case analysis and research projects.
- 571. Management of Financial Institutions.** (3:3:0) S. Daines
Asset management of various types of financial institutions with special emphasis on loan policies and related problems.
- 574. Investment Management.** (3:3:0) S. Prerequisite: Business Management 451. Covey, Daines
Theory of investment management and its application in formulation of investment policies for different types of investors.
- 575. Advanced Production Methods.** (2:2:0) S. Prerequisite: Business Management 561. Staff
Advanced methods work, automation, and the application of data processing to industrial operations.
- 576. Industrial Planning and Forecasting.** (2:2:0) S. Prerequisite: Business Management 488. Staff
Top management policy determination in the areas of production planning, planning of physical facilities, and organization planning as they are related to market and economic forecasts.
- 577. Business Enterprise and Moral Responsibility.** (2:2:0) F.S. Prerequisite: senior standing. Pratt, Staff
A case course in decision making in areas involving conflicts of interest which necessitate reconciling economic objectives and fundamental goals of business.

- 579. Problems in Marketing.** (3:3:0) F.S. Prerequisites: Accounting 211 and Statistics 221 or consent of instructor. Staff
Analysis of problems in marketing management with particular emphasis on integrating the various functional areas.
- 585. Industry Analysis.** (3:3:0) F.S. Prerequisites: Accounting 201, 202, and Statistics 221 or consent of instructor. Staff
Production characteristics of major industries. Large business units are studied in terms of sources of raw materials, production techniques, financial structure, degree of integration, stage of maturity, character of mechanization, government regulation, and possible future development.
- 589. Business Policy.** (3:3:0) F.S. Prerequisites: Business Management 489 and senior standing in the Department of Business Management. Covey, McKay
Cases involving determination of long range objectives in the business firm; the development of sound and consistent policies for achieving these objectives.
- 591. Research and Diagnosis of Business Problems.** (1-2:Arr.:Arr.) F.S. Prerequisite: completion of or concurrent registration in Business Management 589. Staff
Provides experience in the research and diagnosis phase of case method. Includes preparation of cases from actual business situations.
- 699. Thesis for Master of Science or Master of Arts Degree.** (1-6:Arr.:Arr.) F.S. Staff

These courses also count in business management:

Accounting 556. Electronic Computer Programming. (3:3:1)

Journalism 561. Public Relations. (3:3:0)

Chemical Engineering

Associate Professors: Barker (chairman, 176 ELB), Christensen.

Assistant Professor: Smoot.

The Department of Chemical Engineering Science offers the master's degree with research in such fields as mass transfer, solvent extraction, fluid dynamics, heat transfer, thermodynamics, process control, applied mathematics, high pressure, and materials.

Requirements

A student working toward a graduate degree in chemical engineering should have completed a bachelor's degree or its equivalent from an accredited engineering school. Students without such training are required to complete basic chemical engineering courses before proceeding with a graduate program.

In addition to the general Graduate School entrance requirements, a student may be required to successfully complete a departmental entrance examination before he is accepted as a candidate for the master's degree.

The student should normally choose a research project prior to or at the beginning of his first semester of residence at the University.

Graduate Courses

- 578. Chemical Engineering Kinetics.** (3:3:0) F. Christensen
Theories and applications of chemical kinetics in catalytic and non-catalytic reacting systems.
- 579. Process Dynamics and Unit Processes...** (3:3:0) S. Barker
A fundamental study of the measurement and control of process variables. The characteristics of processes, controllers, measuring elements, and the application of closed loop techniques.

- 671. Advanced Heat Transfer.** (2:2:0) F. Barker, Christensen
An advanced treatment of the transfer of heat with emphasis on applications of engineering interest.
- 672. Advanced Fluid Flow.** (2:2:0) F. Barker, Christensen
An advanced treatment of the flow of fluids with emphasis on application of engineering interest.
- 673. Advanced Transport Phenomena.** (3:3:0) F. Smoot
Derivation and application of the general differential equations for transport for momentum, heat, and mass. Methods of estimating transport coefficients. Application of kinetic theory to transport mechanisms.
- 674. Advanced Thermodynamics.** (2:2:0) S. Christensen
Advanced applications of thermodynamics to chemical engineering problems. Estimation and correlation of thermodynamics properties; chemical equilibrium and introduction to statistical thermodynamics.
- 675. Separation Processes.** (3:2:3) Arr. Smoot
Absorption and extraction; interphasial mass transfer, multi-component systems, simultaneous absorption, and chemical reaction; design of equipment.
- 676. Seminar.** (0:1:0) F.S. Staff
Discussion of advanced topics including the plans and results of the master thesis.
- 681. Kinetics and Catalysis.** (2:2:0) Arr. Christensen
Application of fundamental theories of reaction kinetics, diffusion, and adsorption to catalytic and non-catalytic reacting systems.
- 682. Nuclear Engineering.** (2:2:0) Arr. Barker
Reactor design including reactor physics, heat transfer, engineering materials, instrumentation, and control.
- 683. Advanced Plant Design.** (2:2:0) Arr. Staff
Comprehensive design of a chemical plant including feasibility and market surveys, economic evaluation, raw materials, plant location, plant layout, design, instrumentation, materials of construction.
- 684. Advanced Process Dynamics and Control.** (2:1:3) Arr. Barker
Dynamics of chemical processes, the measurement of process variables, and the control of processes using feed-back control.
- 685. Chemical Engineering Analysis.** (2:2:0) Arr. Smoot
Mathematical analysis of selected topics in unit operations and unit processes.
- 686. Distillation.** (2:2:0) Arr. Staff
Binary and multicomponent distillation, prediction of equilibrium relationships, extractive and azeotropic distillation, application of computers to complex distillation column design; instrumentation.
- 687. Chemical Engineering Economics.** (2:2:0) Arr. Staff
An investigation into the basic economic principles which govern the operations of the chemical industry.
- 688. Special Problems.** (Arr.) Arr. Staff
Investigation of problems of special interest in the field of chemical engineering.
- 697. Research.** (Arr.) F.S.Su. Staff
- 699. Thesis.** (Arr.) F.S.Su. Staff

Chemistry

Professors: Swensen (chairman, 225 ESC), Anderson, Blackham, Broadbent, Bryner, Goates, Gubler, Hall, Nelson, Nicholes.

Special Professor: Vernon.

Associate Professors: Butler, Izatt, Peterson.

Assistant Professors: Cluff, Hawkins, Ott, Snow, White, Wing.

Supt. of Laboratories and Stores: Meibos.

Fields

1. Analytical—physical chemistry, 2. Biochemistry, 3. Inorganic chemistry, 4. Organic chemistry, 5. Physical chemistry, 6. Basic chemistry minor.

Requirements

It is expected that the graduate student will meet all the general requirements for advanced degrees as outlined by the Graduate School. The initiative for meeting these requirements rests with the student. Special requirements of the Department of Chemistry are given below. The objectives of the department in the selection and training of candidates for advanced degrees are first, to assure adequate depth and breadth of knowledge; and second, to discover and develop ability to do independent and productive scientific research. The student's record in undergraduate courses will be accepted as partial evidence of the breadth of his knowledge. He will be expected to extend and broaden this knowledge by taking or auditing advanced courses selected with the approval of his advisory committee.

It is expected that during the first semester of graduate work, the student will choose an advisory committee whose function will be to guide him throughout the course of his graduate study. It is the desire of the department that the student choose the chairman of his committee after individual consultation with at least five members of the Department of Chemistry staff who represent three or more fields of chemistry and who are presently active in research. These faculty consultations are to be recorded on a special form obtained from the department office. After these consultations are completed the student will select his major professor and inform the department chairman of his choice. The department chairman and the student will confer with the professor and ask for his agreement to serve as chairman of the student's advisory committee. The other committeemen will then be chosen by mutual consent of the student and his major professor.

Master's Degree

In addition to the general Graduate School requirements, a student must successfully complete a departmental entrance examination before he will be accepted as a candidate for the master's degree. Each candidate for the master's degree will be required to pass a reading test or present a year's credit in French, German, or Russian.

Doctor of Philosophy Degree

Requirements for a Doctor of Philosophy degree in a field of chemistry include satisfactory completion of the following:

1. A written appraisal examination to determine if the student is adequately prepared to enter immediately upon his graduate program.
2. A major consisting of the following courses required of all students: Chemistry 503, 504, and 601 plus an additional 11 hours minimum chosen from the major area by the student and his advisory committee.
3. A first minor in basic chemistry consisting of three of the following basic courses not in the student's major area: Chemistry 514, 580, 621, 551 or 652, 661.
4. A second minor consisting of course work and study satisfactory to the student's advisory committee, both in quality and quantity.

5. An evaluation by the chemistry faculty of the students academic performance will be made at the end of the semester in which the 16th hour of graduate credit is obtained. It will then be recommended that he (1) be allowed to proceed with his Ph.D. program, (2) be allowed to enroll in a Master's program, or (3) be denied permission to remain enrolled as a degree-seeking student in the Department of Chemistry.
6. A comprehensive examination consisting of written examinations in the major and second minor fields and an oral proposition examination. The comprehensive examination may not be taken before the student's academic performance has been evaluated (item 5), but must be taken at least one year prior to the granting of the degree. All parts of the comprehensive examination must be completed within a period of three weeks.
7. Admission to candidacy after (1) completing two years of graduate study, (2) passing language examinations, (3) passing comprehensive examination, and (4) obtaining approval of subject for dissertation.
8. A dissertation prepared under the direction of the candidate's advisory committee in which he reports and interprets the results of his research.
9. A final oral examination devoted primarily to the dissertation.

Graduate Courses

- 500. History of Chemistry.** (2:2:0) S. Nicholes
- 503. Research Laboratory Techniques.** (1:0:3) F. Staff
- 504. Instrumental Analysis.** (2:1:3) F.S. Prerequisite: Chemistry 461, 464.
Butler, Goates, Ott
- 514. Inorganic Chemistry.** (3:3:0) S. Prerequisite: Chemistry 221 or 321 and Chemistry 351.
Cluff, Izatt, Peterson
- 518. Inorganic Syntheses.** (2:0:6) (Offered 1963-64 and alternate years)
Cluff, Izatt, Peterson
- 524. Quantitative Microanalysis.** (2:1:3) S. (Offered 1962-63 and alternate years)
Wing
- 551. Qualitative Organic Analysis.** (2-3:1:3-6) F.
Blackham, Broadbent, Hawkins, Nelson
Systematic identification of organic compounds singly and in mixtures.
- 580. Metabolic Processes.** (2:2:0) S. Prerequisites: Chemistry 352 and 461.
Gubler, Swensen, White
For non-biochemistry majors only. Provides an insight into the important area of biochemistry for those who will not otherwise contact it.
- 581, 582. Biochemistry.** (3:3:0 ea.) F.S. Prerequisites: Chemistry 321 or 221, and 352 and 355.
Gubler, Swensen, White
- 584, 585. Biochemistry Laboratory.** (2:0:6 ea.) F.S. Prerequisites: completion of or concurrent registration in Chemistry 581, 582, respectively.
Gubler, Swensen, White
- 591, 592. Chemical Literature and Technical Writing.** (1:1:0 ea.) F.S.
Broadbent, Nelson
- 594, 595. General Seminar.** (0:1:0) Required of all first year graduate students in Chemistry. Staff
- 598. Special Problems.** (Arr.) Arr. Staff
Registration by permission.
- 601. Geometry of Atoms and Molecules.** (3:3:0) F.
Blackham, Broadbent, Hawkins, Nelson
- 612. Chemistry of the Non-Metals.** (2:2:0) F. (Offered 1962-63 and alternate years)
Cluff, Izatt

613. **Chemistry of the Metals.** (2:2:0) F. (Offered 1963-64 and alternate years)
Cluff, Izatt
621. **Advanced Analytical Chemistry.** (2:2:0) S. Butler
652. **Advanced Organic Chemistry.** (3:3:0) S.
Blackham, Broadbent, Hawkins, Nelson
658. **Organic Syntheses.** (3:1:6) F. Blackham, Broadbent, Hawkins, Nelson
661. **Chemical Thermodynamics.** (3:3:0) F. Goates, Ott, Snow
662. **Chemical Thermodynamics.** (2:2:0) S. Goates, Ott, Snow
663. **Reaction Kinetics...** (2:2:0) S. Goates, Ott, Snow
- 681, 682. **Biochemistry of Carbohydrates, Lipids and Proteins.** (3:3:0 ea.) F.S.
(Offered 1962-63 and alternate years) Gubler, Swensen, White
- 694, 695. **General Seminar.** (0:1:0) F.S. Staff
697. **Master's Candidate Research.** (Arr.) Arr. Staff
699. **Thesis for Master's Degree.** (Arr.) Arr. Staff
711. **Coordination Compounds.** (2:2:0) F. (Offered 1962-63 and alternate years)
Izatt
719. **Selected Topics in Inorganic Chemistry.** (1-3:1-3:0) Arr. Staff
725. **Electro-analytical Chemistry.** (3:3:0) F. (Offered 1962-63 and alternate years)
Butler
729. **Selected Topics in Analytical Chemistry.** (1-3:1-3:0) Arr. Staff
751. **Mechanisms of Organic Reactions.** (3:3:0) F.
Blackham, Broadbent, Hawkins, Nelson
757. **Chemistry of Natural Products.** (3:3:0) S. (Offered 1962-63 and alternate years)
Broadbent
758. **Heterocyclic Compounds.** (3:3:0) S. (Offered 1963-64 and alternate years)
Broadbent
759. **Selected Topics in Organic Chemistry.** (1-3:1-3:0) Arr. Staff
- 761, 762. **Statistical Mechanics.** (3:3:0 ea.) F.S. (Offered 1962-63 and alternate years)
Snow
764. **Nuclear and Radiochemistry.** (3:2:2) S. (Offered 1963-64 and alternate years)
Anderson
- 765, 766. **Quantum Chemistry.** (3:3:0 ea.) F.S. (Offered 1963-64 and alternate years)
Snow
769. **Selected Topics in Physical Chemistry.** (1-3:1-3:0) Arr. Staff
781. **Enzyme Chemistry.** (2-3:2:0-3) F. (Offered 1963-64 and alternate years)
Swensen, White
782. **Biological Oxidation.** (2:2:0) S. (Offered 1963-64 and alternate years)
White
- 794, 795. **General Seminar.** (0:1:0) F.S. Staff
797. **Doctoral Candidate Research.** (Arr.) Arr. Staff
799. **Dissertation for the Ph.D. Degree.** (Arr.) Arr. Staff

Civil Engineering Science

Professors: Rollins (chairman, 198 ELB), Firmage, Fuhrman, Hodson.
Associate Professor: Barton.

The Department of Civil Engineering Science offers the master's degree in the areas of structures, hydraulics, engineering mechanics, soil mechanics, and materials.

A student working toward the graduate degree in civil engineering should have completed a bachelor's degree or its equivalent in civil engineering. Students without such training are required to complete basic civil engineering courses before proceeding with a graduate program.

All students working toward a graduate degree in civil engineering are expected to complete a minimum of 6 semester hours of approved mathematics credit beyond a course in ordinary differential equations. Such courses must be a part of the master's degree program if they were not completed in the undergraduate program.

In addition to the general Graduate School requirements, a student may be required to successfully complete a departmental entrance examination before he is accepted as a candidate for the master's degree.

Graduate Courses

- 501. Advanced Mechanics of Materials I.** (3:3:0) Arr. Barton
 Introduction to theories of elasticity, plasticity, and strain energy methods; stresses and strains in beams, curved members, rotating discs, thick cylinders, and torsion and structural members.
- 503. Applied Elasticity.** (3:3:0) Arr. Barton
 Analysis of stress and strain in two dimensions; equation of equilibrium and compatibility; problems in elasticity; emphasis on applications to machine and structural design.
- 507. Experimental Stress Analysis I.** (3:2:3) Arr. Barton
 Principles and techniques of the experimental methods of stress determination and their application to static engineering problems; includes mechanical and optical gages, and brittle lacquers; emphasizes electric strain gages, calibration and instrumentation; introduces photoelasticity and photostress techniques.
- 526. Advanced Structural Theory.** (3:2:3) Arr. Firmage
 Continued analytical methods in structural mechanics and iterative processes. Solutions of complex structural types; arches; secondary stress.
- 531. Advanced Hydraulic Design.** (3:2:3) Arr. Prerequisites: C.E. 424, 431, and 432. Fuhrman
 Planning and basic design of hydro-electric flood control, irrigation, and multi-purpose projects involving the utilization of water resources; consideration of hydraulic and hydrologic design elements.
- 543. Physico-Chemical Characteristics of Soils.** (3:3:0) Arr. Prerequisites: Chemistry 106, Physics 212, C.E. 441. Rollins
- 601. Advanced Properties of Materials.** (3:3:0) Arr. Prerequisite: C.E. 401 or equivalent. Barton
 Structure of metals and behavior of materials under various conditions of loading and use; relation of mechanical properties to behavior and their significance; tests and interpretation of test data.
- 603. Theory of Elasticity.** (3:3:0) Arr. Prerequisites: Math 315 and 316 or equivalent. Barton
 The mathematical theory of elasticity; analysis of stress and strain; generalized Hooke's law; uniqueness theorem, special topics in elasticity.

621. **Thin Shell Structures.** (3:3:0) Arr. Firmage
Theory and design methods related to domes, arches, folded plate, and hyper structures.
622. **Bridge Design.** (3:3:0) Arr. Firmage
Design of statically indeterminate bridge structures including composite continuous beams and continuous trusses. Design of piers and abutments. AASHTO bridge design specifications.
623. **Pre-Stressed Concrete.** (3:3:0) Arr. Firmage
Basic theory, pre-stress and post-stress methods. Details of design and fabrication. Applications to continuous structures.
625. **Structural Design of Multi-Story Buildings.** (3:3:0) Arr. Firmage
Design loadings and specifications, analysis and design of statically indeterminate structural frames of steel and concrete. Elastic and plastic approaches to design.
632. **Advanced Hydrology.** (3:3:0) Arr. Prerequisites: C.E. 431, 432 or equivalent. Fuhrman
Theory and application of advanced hydrologic principles to engineering design and investigations.
633. **Hydraulic Design of Water Control Structures.** (3:3:0) Arr. Fuhrman
Hydraulic and structural design of concrete dams and appurtenants works operational procedures.
641. **Advanced Soil Mechanics.** (3:3:0) Arr. Prerequisites: C.E. 441, 542 or equivalent. Rollins
Advanced topics in soil mechanics including stress distribution in earth masses, the shearing strength of soils, consolidation theory, settlement analysis, stability of slopes, and the bearing capacity of soils.
642. **Advanced Soil Mechanics Laboratory.** (2:0:6) Arr. Prerequisites: C.E. 441, 542, or equivalent. Rollins
An advanced study in the techniques of laboratory investigations of soils.
644. **Advanced Foundation Engineering.** (3:3:0) Arr. Rollins
An applied course in foundation engineering including techniques of sub-surface investigation, determination of the allowable soil pressures for footings and the design of spread footings, raft foundation, and pile foundation for structures on clays, silts, and sand.

Dramatic Arts and Speech

Dramatic Arts

Professors: Hansen (chairman, Steadman House), Gledhill, Mitchell.
Assistant Professors: McKinlay, Rich, Williams.

Speech

Professors: deJong, Bateman, Morley.
Associate Professor: Mecham.
Assistant Professor: Clinger (chairman, Elliot House).

DEPARTMENT OF DRAMATIC ARTS

Fields

Dramatic arts and theatre, interpretation, and radio and television.

Requirements

For full graduate standing as a major in dramatic arts and theatre, interpretation, or radio and television, the student must present as background: Dramatic Arts 121, 123, 241, Speech 101, or their equivalents, plus 12 hours of electives approved by the chairman of the department. Academic programs are available leading to the M.A. and M.S. degrees.

During the first semester of graduate study, candidates for the master's degree must pass a written test to demonstrate proficiency in background in the area in which they elect to major.

It is expected that graduate students will acquaint themselves with all the general regulations for advanced degrees as outlined by the Graduate School.

Following are divisions of courses in dramatic arts:

Dramatic arts and theatre: 555, 564, 565, 571, 572, 573, 577, 578, 643, 667, 668, 670, 671, 672, 673, 674, 675, 676, 678, 697, 699.

Interpretation: 423, 643, 660, 661, 662, 663, 667, 696, 699.

Speech: 527.

Radio and television: 577, 578, 603, 605, 643, 670, 672, 673, 678, 690, 691, 699.

Graduate Courses

- | | | |
|-----------|--|---------------------|
| 555. | Theatre Workshop. (2-4:2-4:2) Su. only. May be repeated.
Practical production on the graduate level. | Hansen |
| 564. | Theatre History I. (3:3:0) F.
The development of the theatre, covering periods of Primitive, Egyptian, Greek, Roman, Medieval, and Elizabethan periods. | Hansen |
| 565. | Theatre History II. (3:3:0) S.
The development of the theatre, covering the Restoration period in England, the Western theatre in the 19th and 20th centuries, and the Oriental theatre. | Hansen |
| 572, 573. | Children's Theatre. (2:2:1) F.
Directing for audiences of children and youth. Participation in Youtheatre productions. Attendance at Monday night Mask Club recommended. | Golightly, Mitchell |
| 577, 578. | Playwriting. (1-2:1-2:0) F.S.
Advanced techniques and theories. | Hansen, Mitchell |
| 603. | Radio and Television Projects. (1-4:1-4:0) S. | Staff |
| 605. | History of Radio and Television Programming. (2:2:0) S. | Staff |
| 643. | Methods and Problems of Research in Speech and Dramatic Arts. (2:2:0) F.
Required of all graduate students. Should be taken as early as possible. | Clinger, Meham |
| 660. | Theory of Interpretation. (2:2:0) S. | Gledhill, Mitchell |
| 661. | Oral Interpretation of Classical Literature. (2:2:0) F.S. | Mitchell |
| 662. | Regional Dialects. (2:2:0) S. | Clinger |
| 663. | Program Building and Lecture Recital. (2:2:0) F. | Gledhill |
| 667. | History of Acting. (2:2:0) S.
Styles and theories from Classical to Method. | Hansen |
| 668. | Special Problems in Theatre History. (1-3:1-3:0) F.S.
Oriental theatre and the Free theatres of Europe. | Staff |
| 670. | Advanced Play Production—Technical. (2:2:0) S.
A formal study of the "isms" from the point of view of stage design. | Staff |
| 671. | Experimental Theatre. (2:2:0) F. | Hansen |
| 672. | Problems of the Producing Director. (2:2:0) F. | Hansen |
| 673. | Advanced Play Production—Directing. (2:2:0) S. | Hansen |

674. Projects in Theatre. (1-4:1-4:0) F.S.	Staff
675, 676. Stage Design. (2:2:1) F.S. May be repeated.	Staff
678. Stage Lighting. (1-2:1-2:0) F.S.	Staff
690. Seminar in Mass Communication. (1-3:1-3:0) F.S.	Staff
691. Selected Readings in Radio and Television. (1-3:1-3:0) F.S.	Staff
696. Seminar in Interpretation. (1-3:1-3:0) F.S.	Gledhill
697. Seminar in Arena Theatre. (1-4:1-4:0) F.S.	Hansen
699. Thesis for Master's Degree. (Arr.) F.S.	Staff

DEPARTMENT OF SPEECH

Following are divisions of courses in speech:

Public speaking: 521, 524, 525, 527, 621, 622, 623, 624, 643, 692, and 699. 401 and 402 may be counted in this field in harmony with general regulations of the Graduate School.

Speech pathology or audiology: 542, 545, 547, 560, 561, 640, 641, 643, 645, 646, 647, 648, 656, 657, 693, 694, 695, 699.

524. High School Forensics and Programming. (1-2:1-2:1-6) S.	Bateman, Boren
525. Debate Coaching. (1-2:1-2:0) F.S. Art of storytelling. Especially valuable to teachers and youth leaders.	Bateman
542. Organic Speech Disorders. (2:2:0) S.	Mecham
545. Public School Audiometry. (2:2:2) F.S. Prerequisite: Speech 373.	Weaver
547. Psychology of Speech. (2:2:0) S. Prerequisite: Psychology 111.	Morley
560. Clinical Audiology. (2:2:2) F.S. Prerequisite: Speech 373.	Weaver
561. Hearing Aids. (1:1:0) S.	Weaver
590. Selected Readings and Projects in Public Address. (1-2:0:0) F.S.	Staff
621. Ancient Rhetoric and Oratory. (2:2:0) F.	Boren
622. History of British Public Speaking. (2:2:0) S.	Boren
623. History of American Oratory and Public Address. (2:2:0) F.	Bateman
624. Contemporary Public Address. (2:2:0) S.	Bateman
640. Internship in Advanced Methodology and Clinical Practicum in Speech Pathology. (1-2:1-2:0) F.S.	Staff
641. Internship in Advanced Methodology and Clinical Practicum in Audiology. (1-2:1-2:0) F.S.	Staff
643. Methods and Problems of Research in Speech and Dramatic Arts. (2:2:0) F. Required of all graduate students. It is imperative that graduate students take ¹ this course early in their graduate program.	Clinger, Mecham
645. Advanced Studies in Stuttering. (2:2:0) S.	Morley
646. Advanced Studies in Cleft Palate. (2:2:0) F.	Mecham
647. Advanced Studies in Cerebral Palsy. (2:2:0) F.	Mecham
648. Advanced Studies in Aphasia. (2:2:0) S.	Mecham

656. Special Problems in Speech Pathology. (1-4:1-4:0) F.S.	Staff
657. Special Project in Audiology. (1-2:1-2:0) F.S.	Staff
692. Seminar in Public Speaking. (1-3:1-3:0) F.S.	Bateman
693. Special Studies in Speech Pathology. (1-3:1-3:0) F.S.	Staff
694. Special Studies in Audiology. (1-2:1-2:0) F.S.	Staff
695. Seminar in Psychoacoustics of Speech and Hearing. (1-3:1-3:0) F.S.	Staff
699. Thesis for Master's Degree. (1-6:Arr.:Arr.) F.S.	Staff

Economics

Professors: Clark, Nelson.

Associate Professors: Davies, Gardner, Mangum.

Assistant Professors: Doxey (chairman, 302 JK), Monsen, Wirthlin.

For full graduate standing, a student in economics must have completed Economics 111, 112, 345, 475, and Statistics 221 or their equivalents. However, a student may be admitted on a provisional basis upon completion of Economics 111 and 112, provided he registers in Economics 345 and Statistics 221 his first semester of graduate work and includes Economics 475 as part of his graduate program.

There are two basic programs in economics:

1. General economics—the student in this program may select 15 hours of work under the guidance of his committee. This program must include Economics 586, 587, and 594. In the event the student has had Economics 274 in his undergraduate work, course 594 may be waived.
2. Junior college teaching of economics—those preparing to teach economics in the junior colleges should acquire either a junior college or a secondary teaching certificate. The junior college certificate requires the completion of Instruction 682, 684, and 685. These courses may be applied toward the 5 hours of graduate work outside the major and minor requirements. The major work, consisting of 15 hours, should be selected to add breadth of understanding of economic principles and institutions and must include Economics 594, and either Economics 486 or the 586-587 sequence. Depending upon the graduate's background and interest, the minor will usually be selected from one of the following fields: accounting, business management, geography, history, political science, psychology, or statistics.

Students in both programs must complete an acceptable thesis in addition to the 15 hours of graduate classwork in economics. They must also complete English 99 before beginning the writing of the thesis.

Graduate Courses

510. Workshop on Economic Education. (3:Arr.:Arr.) Su. (Continuous for three weeks)	
530. Advanced Economic Development. (3:3:0) F.	Wirthlin
535. Economic Problems of Asia. (3:3:0) S.	Monsen
558. International Trade and Finance. (3:3:0) S.	Doxey
575. Government Finance. (3:3:0) F.	Mangum
576. Government and Business. (3:3:0) S.	Mangum
580. History of Economic Thought. (3:3:0) F.	Davies

586. **Theory of Price.** (3:3:0) F. Gardner, Wirthlin
587. **Theory of Income, Employment, and the Price Level.** (3:3:0) S. Gardner, Wirthlin
588. **Econometrics.** (2:2:0) F. Prerequisite: Math 101, Statistics 221, Economics 345. Gardner
590. **Advanced Economic Problems.** (1-2:Arr.:Arr.) F.S.Su. Staff
594. **Seminar in Economic History.** (2:2:0) F. Doxey
681. **Contemporary Economic Thought.** (2:2:0) S. Gardner
682. **Business and Economic Fluctuations.** (2:2:0) F. Nelson
692. **Seminar in Monetary and Fiscal Policy.** (2:2:0) F. Prerequisite: Economics 345. Staff
693. **Seminar in Comparative Economic Systems.** (2:2:0) S. Monsen, Nelson
694. **Seminar in Labor Economics and Labor Relations.** (2:2:0) S. Prerequisite: Economics 461. Davies, Mangum
- 696, 697. **Research.** (Arr.) F.S.Su. Staff
699. **Thesis for Master's Degree.** (Arr.) Staff

These courses also count in economics but cannot be used for a graduate minor in Economics:

Geography 522. **Urban Geography.** (2:2:0)

Agricultural Economics 525. **Production Economics.** (2:2:0)

Geography 533. **Industrial Geography.** (3:3:0)

Agricultural Economics 580. **Agricultural Policy.** (2:2:0)

Electrical Engineering Science

Professors: Bartholomew, Jonsson.

Associate Professors: Monson (chairman, 175 ELB).

Assistant Professor: Clegg.

The Department of Electrical Engineering Science offers the master's degree in the areas of electronics, communications, computers, acoustics, solid state, and automatic control. All students working toward a graduate degree in electrical engineering are expected to (1) fulfill the general requirements of the Graduate School, (2) complete a minimum of 18 semester hours in the major field and thesis, of which four to six hours must be in readings (E.E. 698) and thesis and (3) complete a minimum of nine hours in mathematics and other basic sciences, of which there must be a minimum of 6 hours in mathematics. Each student is required to take E.E. 698, Readings and Seminar prior to the start of his graduate research. The student should normally choose a major professor, and with him determine an advisory committee prior to or at the beginning of his first semester of residence at the University.

In view of the engineering science emphasis given to the undergraduate curriculum, the transfer student may find it necessary and desirable to take certain courses normally required of the undergraduate student at Brigham Young University. Prospective majors should consult the department prior to registration to determine if such a course will be considered remedial or allowed to apply on the degree.

Graduate Courses

- 511, 512. Network Synthesis.** (3:3:0 ea.) Arr. Prerequisites: E.E. 312, 411. Staff
Designed to present the basic theory for the synthesis of 2-terminal and 4-terminal networks. Various basic approaches are enumerated and applied to ladder and lattice types of filter networks. Insertion loss and phase shift characteristics and means of meeting such requirements.
- 516. Servomechanisms.** (3:3:0) Arr. Prerequisite: E.E. 411. Jonsson
Theory and application of electrical and electro-mechanical automatic control systems.
- 523. Digital Computer Engineering.** (3:2:3) Arr. Prerequisite: fourth year standing as an engineer. Staff
A study of the logical design and operation of digital computers.
- 528. Analog Computer.** (2:2:0) Arr. Prerequisite: E.E. 302 or 442. Staff
Theory and operation of summing, integrating, and differentiating circuits; function generators and operational amplifiers and their applications to analog computers. Also the application of signal-flow graphs to the analysis and simulation of analog computer systems.
- 531. Power Systems.** (2:2:0) Arr. Prerequisite: E.E. 432. Staff
The analysis and design of electrical power distribution systems and a study of electrical power distribution system protection.
- 537, 538. Advanced Control Machinery Laboratory.** (1:0:3 ea.) S. Prerequisite: E.E. 462. Staff
Each of these courses constitutes a block of experiments in the area of machinery control systems, machinery characteristics and power distribution methods. Registration is permitted for either course or both courses simultaneously.
- 541. Switching, Timing, and Pulse Circuits.** (4:3:3) F. Prerequisite: E.E. 442. Staff
Passive and active circuits utilizing tubes, transistors, diodes and other devices.
- 542. Advanced Electronic Devices and Circuits.** (3:3:0) S. Prerequisite: E.E. 541. Staff
Consideration is given to lumped instantaneous circuits including switching memory, shaping, and generation.
- 545. Advanced Amplifier Circuits.** (3:3:0) F. Prerequisite: E.E. 442. Staff
This course will consider many different devices as used in amplifier circuits.
- 567, 568. Advanced Communications and Electronic Laboratory.** (1:0:3 ea.) S. Prerequisite: E.E. 462. Staff
Each of these courses constitutes a block of experiments in the area of U.H.F. techniques, electronic circuits, communication systems, pulse forming networks, transmission lines and filters. Registration is permitted for either course or both courses simultaneously.
- 570. Illumination.** (2:2:0) Arr. Prerequisites: E.E. 312, 441. Monson
Principles and design of artificial illumination for various applications; lamp characteristics; measurements; costs.
- 580. Elements of Acoustics.** (2:2:0) Arr. Prerequisite: fifth year standing in electrical engineering. Monson
Brief course in the fundamentals of sound production, transmission, and reception with an introduction into sound application in public address and other engineering systems.
- 581. Psycho-Acoustics.** (5:5:0) Arr. Prerequisite: E.E. 442. Staff
Speech and hearing from a communication engineering viewpoint. Synamical analysis of speech and hearing processes are developed. Known ex-

perimental facts about speech and hearing are systematically studied and compared with calculated results. Methods of calculating and measuring articulation index of talker-listener pair when using any specified type of communication system.

- 584, 585. Advanced Musical Acoustics.** (2:2:0 ea.) Arr. Prerequisites: Physics 561, 562, or E.E. 580. Monson

Technical study of acoustical behavior of different musical instruments, consideration of sound power output of single instruments and ensembles, stereophonic reproduction of music, possibilities of electronic musical instruments.

- 587. Architectural Acoustics.** (3:3:0) Arr. Prerequisites: Physics 211, 212. Monson

Fundamental behavior of sound in rooms; effects of shape and size upon perception of speech and music; proper use of public address and sound reinforcing systems, sound absorption and insulation properties of different kinds of room walls; kind and amounts of sound absorption materials to use in sound treatment of rooms and auditoriums.

- 591, 592. Seminar and Field Trips.** (1:0:3 ea.) F.S. Prerequisite: fifth year standing in electrical engineering. Staff

Student and faculty presentation of special topics and subjects of current interest; visits to industries displaying varied types of electrical engineering applications. Participation on the annual field trip is required.

- 598. Special Problem.** (Arr.) F.S. Staff

Registration by permission of professor sponsoring problem. A maximum of two credit hours may be applied toward filling the restricted elective requirement.

- 618. Non-Linear Analysis.** (3:3:0) Arr. Prerequisite: E.E. 516. Jonsson

Consideration of second order non-linear differential equations, problems of discrete systems, design in the phase plane, adaptive control systems, dynamic programming.

- 619. Non-Deterministic Control Systems.** (3:3:0) S. Prerequisite: E.E. 516. Jonsson

Statistical design principles, decision theory, competitive situation, queueing systems and linear programming as applied to control systems.

- 620. Information Theory.** (3:3:0) Arr. Prerequisite: E.E. 462 or equivalent. Staff

Power spectrum analysis as applied to communications engineering. Discrete systems, continuous signals, random noise, signal space, and correlation functions are applied to signal propagation and detection.

- 623. Advanced Digital Computers.** (3:3:0) S. Prerequisites: E.E. 523, 541. Bartholomew

Advanced theory and operation of digital computers and their design and application to engineering, scientific, and control problems.

- 645, 646. Microwave Devices.** (3:3:0 ea.) F.S. Prerequisite: E.E. 661, 662 concurrently. Staff

Consideration is given to electronic and solid state devices which have particular application to the propagation, attenuation, modification, and detection of frequencies at and above the S-band.

- 661, 662. Advanced Electromagnetic Fields.** (3:3:0 ea.) F.S. Prerequisite: E.E. 461 or equivalent. Staff

Advanced problems of wave propagation, reflection, and transmission; static and dynamic boundary value problems including general coordinate systems and conformal transformations; power losses in electromagnetic systems and resonant cavity perturbations by approximation techniques. Topics in wave patterns, impedance functions and radiation applied to transmission lines and antennas.

697. **Master's Candidate Research.** (1-4:Arr.:Arr.) Staff
698. **Readings and Seminar.** (1:1:0) F. Prerequisite: graduate standing. Staff
It is expected that every graduate student will make a literature study and report the results of such readings, outlining his proposed problem, at a seminar with other graduate students and faculty before commencing his research and thesis.
699. **Thesis for Master's Degree.** (1-6:Arr.:Arr.) Arr. Prerequisite: graduate standing. Staff

English

Professors: B. Clark (chairman, 307 McK), Christensen, Farnsworth, Hart, Jacobs, Young.

Associate Professors: Britsch, Cheney, M. Clark, Larson, Monson, Spears, Tanner.

Assistant Professors: Ellsworth, Gassman, Wood.

Requirements

A graduate student may major in either English or American literature; he may minor in a subject outside the English Department or in English literature, American literature, or English language. In addition, he should complete the university requirements for the Master of Arts degree, which is the only graduate degree offered in the English Department.

Among the thirty hours required for a Master of Arts degree, each student must take the following courses:

	Hours
A. 615. Bibliography and Methods of Research	1
B. 525. Old English	3

The following courses must also be included if the student did not have them as an undergraduate:

A. 521. The History of the English Language	3
B. 550. The Criticism and Appreciation of Literature	3

In fulfilling the thesis requirements for a master's degree in English, a student may select any one of the following three options:

- (1) One long thesis on a topic demanding research, criticism, or both;
- (2) Three long papers written in three different areas of English or American language or literature and on topics demanding research, criticism, or both;
- (3) Two long papers written in two different areas of English or American language or literature and on topics demanding research, criticism, both; and one long paper in the area of imaginative writing.

The work done under any of the above three options is under the direction of the student's advisory committee and must fulfill all of the requirements of form, date of submission, and binding that apply to a regular master's thesis.

The department stipulates that two hours of "B" grade or better in the series of English 318 and 319, or the equivalent directed experience in writing, be regarded as prerequisite for application to use imaginative writing as part of option (3) listed above. With this application, the student must forward to the graduate committee in English samples of his best writing in order that the committee may determine whether he is qualified to use imaginative writing as part of his thesis requirement.

Remedial Course

99. **Problems in Thesis Writing.** (0:2:0) F.S.Su. Britsch, Evans, Staff

Graduate Courses

- 500-509. Eminent American Writers.** (1:1:0 ea.) F.S.Su. M. Clark, Staff
Different writers are treated each year.
- 510-519. Eminent English Writers.** (1:1:0 ea.) F.S.Su. McKendrick, Staff
- 521. History of the English Language.** (3:3:0) S. Christensen, McKendrick
Course descriptive of the English language in various stages of its development, with background of related historical events.
- 525. Old English.** (3:3:0) F. Undergraduate prerequisite: approval of instructor.
Young
- 526. Middle English.** (2:2:0) S. Undergraduate prerequisite: approval of instructor.
Christensen, Monson
- 529. Structure of American English.** (3:3:0) F.Su. Cox, Staff
Application of the methods of linguistic science to the description of the phonology, morphology, and syntax of American English.
- 541. English Drama to 1642.** (2:2:0) F. Young
Religious drama of the Middle Ages, court plays, and popular drama of the Renaissance, excluding Shakespeare.
- 542. Restoration and Eighteenth Century Drama.** (2:2:0) S. Gassman
English drama from 1660 to 1800, with emphasis on high comedy, sentimental comedy, and heroic tragedy.
- 543. Modern English and American Drama.** (2:2:0) F. Tanner
Major English and American dramatists since 1890.
- 550. The Criticism and Appreciation of Literature.** (3:3:0) S. Hart, Thomas
- 572. European Literature of the Renaissance.** (3:3:0) F. Spears
A comparative study of continental European literature of the Renaissance in its relations to English literature.
- 573. European Literature of the 17th and 18th Centuries.** (3:3:0) S. Spears
A comparative study of continental European literature of the 17th and 18th centuries in its relations to English literature.
- 582. Extended Readings in Shakespeare.** (3:3:0) F.S. Young
Extensive study of the body of Shakespeare's works.
- 615. Bibliography and Methods of Research.** (1:1:0) F.Su. Gassman, Larson
- 625. Beowulf.** (2:2:0) S. McKendrick, Young
- 631. The English Novel.** (2:2:0) F. Brady, B. Clark
- 635. The American Novel.** (2:2:0) S. M. Clark, Jacobs, Smart
- 641. The English Drama.** (2:2:0) S. Craig
- 661. Colonialism and Puritanism in American Literature.** (2:2:0) S. Jacobs, Thomson
- 662. Romanticism in American Literature.** (2:2:0) F. Thomas
- 664. Realism and Naturalism in American Literature.** (2:2:0) F. M. Clark, Jacobs, Staff
- 669. Teaching English in the Secondary Schools.** (2:2:0) S.Su. West
- 671. The Medieval Period in English Literature.** (2:2:0) S. Christensen, McKendrick
- 672. The Renaissance in English Literature.** (2:2:0) F. Larson, Young
- 673. Neo-Classicism in English Literature.** (2:2:0) S. Gassman, Hart

674. **Romanticism in English Literature.** (2:2:0) F. Cheney, B. Clark
675. **The Victorian Age in English Literature.** (2:2:0) S. B. Clark, Farnsworth
680. **Seminar in Modern Literature.** (3:3:0) F.Su. Hart, Larson
682. **Shakespeare.** (2:2:0) F. Hart
691. **Research in Folklore.** (2:2:0) S. Cheney
Directed study and research in folk tales, folk poetry, etc., especially as they are related to the Mormon heritage and tradition.
695. **Individual Readings in English.** (1-2:1-4:0) F.S.Su. Staff
699. **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff

Food and Nutrition

Professor: Morris.

Associate Professor: Bennion (chairman, 2218 SFLC).

Assistant Professor: Monsen.

Requirements

For full graduate standing a student must have completed a bachelor's degree with a major in food and nutrition or a closely related field with basic courses in the physical and biological sciences. These basic sciences must have included the following: general chemistry, 5 semester hours; organic chemistry, 5 semester hours; and biochemistry, 4 semester hours. Students with subject matter deficiencies may be recommended for admission, but these deficiencies must be removed before a degree is granted.

The specific selection of courses for a graduate degree is based upon the student's objectives, interest, and preparation. A suitable program is planned in consultation with the major professor. However, all candidates for a master's degree in food and nutrition must have completed the following: quantitative chemistry, 3 semester hours; food microbiology, 2 semester hours; physiology, 4 semester hours; and Food and Nutrition 635, 664, or 666, 690, 691, and 695 or 696.

Graduate Courses

590. **Readings in Food and Nutrition.** (2:2:0) S. Prerequisite: 10 credit hours in food and nutrition or consent of instructor. Staff
594. **Special Problems in Food.** (1-2:0:3-6) Arr. Prerequisite: permission of instructor and chairman of department. Staff
Designed for students who have completed at least 12 hours in food and nutrition including Food and Nutrition 590. Independent study of a special problem in food under the direction of an instructor.
595. **Special Problems in Nutrition.** (1-2:0:3-6) Arr. Prerequisite: permission of instructor and chairman of department. Staff
Designed for students who have completed at least 12 hours in food and nutrition including Food and Nutrition 590. Independent study of a special problem in nutrition under direction of an instructor.
635. **Advanced Human Nutrition.** (2:2:0) Arr. Prerequisite: Food and Nutrition 335 or equivalent. Staff
An advanced study of the principles of human nutrition.
645. **Advanced Child Nutrition.** (2:2:0) Arr. Prerequisites: Food and Nutrition 335 and 345 or equivalent. Staff
664. **Science and Experimental Foods.** (3:2:3) Arr. Prerequisite: Food and Nutrition 464. Bennion
Protein foods; simple colloidal systems; gels, emulsions, and foams.

- 666. Science and Experimental Foods.** (3:2:3) Arr. Prerequisite: Food and Nutrition 464. Bennion
Batters, doughs, and starch-thickened products.
- 690. Seminar in Food.** (2-4:2-4:0) Arr. Staff
- 691. Seminar in Nutrition.** (2-4:2-4:0) Arr. Staff
- 695. Methods of Research in Nutrition.** (2:1:4) Arr. Prerequisite: Food and Nutrition 635. Staff
- 696. Methods of Research in Foods.** (2:1:4) Arr. Prerequisite: Food and Nutrition 664 or 666. Staff
- 699. Thesis for Master's Degree.** (2-4:Arr.:Arr.) Staff

Geography

Assistant Professors: Layton (chairman, 175 HGB), Tuttle.

Requirements

The department offers work leading to the M.S. or the M.A. degree. Candidates for either degree will be admitted on a provisional basis until completion of an oral examination demonstrating a sound knowledge of subject matter as covered in the undergraduate degree. Students must also be prepared to present evidence of their ability to complete written assignments if they have not previously completed such work as undergraduates within the department. Deficiencies in any area must be removed either by additional class work, or by individual study, as determined in consultation with the faculty of the department. Admission on a degree-seeking basis will be made only after completion of this examination and arrangement of any needed remedial work.

Degree-seeking students are allowed a wide range of choice in individual projects and supporting classes according to their particular interest. All such classes must be approved, however, by the major and minor professors in consultation with the student at the beginning of his work. All candidates must include Geography 601, 620, 698, and 699 within their program.

Graduate Courses

- 504. Geographic Field Techniques.** (2:1:2) S. Staff
For majors only.
- 522. Urban Geography.** (2:2:0) F. Layton
Distribution of urban areas, their development, internal land use patterns, and functions in the world's economy.
- 533. Industrial Geography.** (3:3:0) Prerequisite: Geography 231. Layton
A systematic analysis of location patterns of major industries in the United States; raw materials, power resources, and other factors in industrial location.
- 552. United States.** (2:2:0) (Offered 1962-63 and alternate years) Prerequisite: Geography 351. Staff
A concentrated study of various phases of the geography of the U.S. Considerable research and reporting by individual students is required.
- 556. South America.** (2:2:0) (Not offered 1962-63) Prerequisite: Geography 455. Layton
Physical and cultural landscapes of geographic regions of South America.
- 557. Caribbean Area.** (2:2:0) (Offered 1962-63 and alternate years) Prerequisite: Geography 455. Layton

561. **Western Europe and the Mediterranean.** (2:2:0) S. Prerequisite: Geography 460. Staff
A comprehensive study of the systematic and regional geography of non-Communist Europe.
562. **U.S.S.R. and Its Satellites.** (2:2:0) Prerequisite: Geography 460 or 470 or consent of instructor. Staff
A concentrated study of the physical features, resources, agriculture, industries, and distribution of peoples.
571. **Orient.** (2:2:0) F. (Offered 1962-63 and alternate years) Prerequisite: Geography 470. Staff
A comprehensive study of the systematic and regional geography of the Orient.
580. **Geography of Underdeveloped Areas.** (2:2:0) S. Prerequisite: consent of instructor. Staff
Physical, economic, and human geography as it affects the world's underdeveloped areas with emphasis on future development possibilities.
598. **Seminar.** (1:1:0) Arr. Staff
601. **Physical Geography.** (2:1:2) F. Staff
620. **Cultural Geography.** (2:1:2) S. Staff
- 690, 691. **Readings.** (1:1:0) F.S. Staff
For graduate students only.
695. **Special Problems.** (1-2:1-2:0) F.S. Staff
For graduate students only.
- 696, 697. **Research.** (2:2:0) F.S. Staff
698. **Graduate Seminar.** (1:1:0) Arr. Staff
699. **Thesis for Master's Degree.** (1-6:1-4:0) F.S. Staff

This course also counts in geography:

History 585. Historical Geography of the U.S. (2:2:0)

Geology

Professors: Bullock, Bissell, Hintze (chairman, 291 ESC).

Associate Professors: Rigby, Clark, Phillips.

Assistant Professor: Bushman.

Fields

Economic geology;
mineralogy and petrology;
paleontology;
stratigraphy and sedimentation;
structural, field, and dynamic geology

Requirements

The following courses, or their equivalents from another university, are prerequisite for all geology students working toward an advanced degree in geology: Geology 111, 112, 251, 252, 311, 312, 313, 460, 470, 480, and 492. A summer field camp, Geology 410, or its equivalent at another institution, is a necessary prerequisite.

The Department of Geology offers training for the master's degree and the degree of Doctor of Philosophy, with specialization in various fields of geology.

The graduate student is urged to acquire a broad foundation in geology and to secure adequate training before he concentrates on a chosen branch of the subject. To this end certain fundamental course work is recommended for all students. The course offerings are sufficiently varied and complete in order that all students may select courses according to their needs and inclinations as determined in consultation with their advisers.

It is expected that graduate students will meet all the general requirements for advanced degrees as outlined by the Graduate School. The responsibility of meeting these requirements rests with the student.

The graduate program of the Department of Geology offers instruction in five broad fields of geology, with the following course offerings in each field: (1) economic geology—Geology 507, 512, 520, 530, 535, 540, 545, 551, 591, 621, 641, 646, 655, 661, 662, and 678; (2) mineralogy and petrology—Geology 507, 512, 540, 545, 551, 591, 653, 655, 661, 662, and 671; (3) paleontology—Geology 507, 512, 551, 574, 575, 576, 580, 581, 582, 591, 670, 671, 680, 681, 682, and 685; (4) stratigraphy and sedimentation—Geology 507, 512, 551, 574, 575, 576, 591, 653, 670, 671, and 678; (5) structural, field, and dynamic geology—Geology 507, 511, 512, 530, 551, 591, 610, 615, 670, and 671.

A student may select any one of the five fields for a major. He may elect one or two of the remaining fields for his minor(s). Geology 507, 512, and 551 are required of all graduate students. Geology 696, 698, 699, and 799 are variable credit courses commensurate with work completed in each of these areas. A student should not register for Geology 699 or 799 until he has essentially completed his research and is prepared to write his thesis or dissertation.

Master's Degree. (For general requirements see Graduate School regulations). Requirements for a master's degree in geology include: (1) at least sixteen hours of formal course work in the major field and at least ten hours of formal course work in one or two minor fields; (2) a written exploratory examination at the beginning of the graduate program; (3) a comprehensive oral examination on the graduate course work prior to his thesis defense; (4) a thesis embodying the results of research under a faculty member's supervision; and (5) a final oral examination on the research thesis.

Doctor of Philosophy Degree. (For general requirements see Graduate School regulations.) Requirements for a Doctor of Philosophy degree in geology include: (1) a minimum of thirty hours of formal course work in the major field and a minimum of fifteen hours of formal course work in each of two minor fields (the minors may be in a related field outside of the Department of Geology in which upper division and graduate courses will be acceptable); (2) one degree or one year of acceptable graduate study at another institution; (3) a comprehensive examination after sixty hours of graduate work and at least one academic year prior to graduation; (4) dissertation embodying the results of original research; and (5) defense of his dissertation before a formally appointed committee at the close of his final year of study.

Graduate Courses

- 501. Rocks and Minerals.** (2:2:0) F.Su. Bullock
Introductory study of fundamentals of rock and mineral classification and identification. Designed to acquaint the student with the earth's common raw materials, their occurrences, and uses. For the non-geology majors.
- 502. Geology for Teachers.** (2:2:0) S.Su. Home Study also. Bushman
Designed to acquaint the teacher with sources of information, projects, and illustrative materials useful in the classroom.
- 507. Founders and Concepts of Geology.** (2:2:0) F. Bushman
The historical development of geology and the men who contributed to it; the concepts and philosophy that make geology distinct from other sciences. Analysis of some of the more controversial problems in geology.
- 511. Geomorphology.** (3:3:0) F. (Offered 1962-63 and alternate years) Bushman
The historical development of geomorphic concepts. The description of

land forms and evaluation of the processes that formed them, and the application of this knowledge to paleogeography and economic geology.

- 512. Geology of North America.** (4:3:2) S. Rigby
A region by region study of the areal geology, physiography, and geologic development of Canada, United States, and Mexico.
- 520. Petroleum Geology.** (4:4:0) S. (Offered 1962-63 and alternate years) Hintze
The origin, classification, physical properties, distribution, accumulation, and methods of exploration of petroleum.
- 530. Engineering Geology.** (3:3:0) F. (Offered 1962-63 and alternate years) Staff
The geological principles and phenomena which are important to an understanding of engineering problems (especially civil engineering), and the relationships which exist between the science of geology and the practical aspects of engineering.
- 535. Ground Water.** (4:4:0) S. (Offered 1962-63 and alternate years) Staff
The origin, classification, migration, distribution, and production of water found beneath the earth's surface.
- 540. Geophysics.** (3:3:0) F. (Offered 1962-63 and alternate years) Prerequisites: Math 214, Physics 213. Brimhall
The principal objective is to familiarize the student with the scope of geophysics, give insight into methods used by geophysicists, and to outline some of the most important discoveries of these researches.
- 545. Geochemistry.** (3:3:0) F. (Offered 1963-64 and alternate years) Prerequisites: Math 213, Physics 213. Brimhall
The kinds and abundances of elements in the earth, their distribution and the re-distribution in various geologic processes.
- 551. Optical Petrography.** (4:3:4) F. Prerequisites: Geology 252, Physics 202 or 213. Phillips
The behavior of light in crystalline substances and its application to the microscopic identification of minerals as fragments and in thin-section. A consideration of the various schemes of rock classification and the petrographic description of rocks.
- 574. Principles of Stratigraphy.** (2:2:0) F. (Offered 1963-64 and alternate years) Bissell
Study and interpretation of stratified rocks, principles of their origin, distribution, and correlation.
- 575. Precambrian and Paleozoic Stratigraphy.** (3:3:0) F. (Offered 1962-63 and alternate years) Hintze
Synthesis of regional stratigraphic relation in North America.
- 576. Mesozoic and Cenozoic Stratigraphy.** (3:3:0) S. (Offered 1962-63 and alternate years) Bushman
The basins of deposition (throughout the U.S.) of Mesozoic and Cenozoic rocks and key fossils associated with them. Special emphasis on the distribution of these rocks in the state of Utah.
- 580. Invertebrate Paleontology (Protozoans through Brachiopods).** (4:3:2) F. (Offered 1963-64 and alternate years) Clark
Designed for the upper division and the graduate student who desires a broad background in paleozoology, including morphology, paleoecology, evolution, and stratigraphic significance of invertebrates. Basic course for students planning to do graduate work in paleontology or stratigraphy.
- 581. Invertebrate Paleontology (Mollusks through Hemichordates).** (4:3:2) S. (Offered 1963-64 and alternate years) Prerequisite: Geology 580. Clark
Continuation of Geology 580.

- 582. Biostratigraphy.** (3:2:2) F. (Offered 1962-63 and alternate years) Prerequisite: Geology 480 or 581. Clark
A study of fossils in their stratigraphic setting and principles of paleontologic chronology.
- 591. Seminar.** (1:1:0) F. (Offered 1963-64 and alternate years) Rigby
Required of all graduate students; and required attendance of all seniors.
- 610. Structural Geology.** (3:3:0) F. (Offered 1963-64 and alternate years) Hintze
Earth structures and their origin, emphasizing foreign examples.
- 615. Photogeology.** (3:1:4) S. (Offered 1963-64 and alternate years) Hintze
Techniques useful to practicing geologists; using parallax bar and various instruments applicable to contact print photos.
- 621. Oil Field Development.** (3:3:0) S. (Offered 1963-64 and alternate years) Staff
Factors which are important to the production of oil and gas; the economical development of oil and gas fields.
- 641. Geophysical Exploration.** (5:4:2) S. (Offered 1962-63 and alternate years) Brimhall
- 646. Geochemical Techniques and Mineral Prospecting.** (3:2:2) S. (Offered 1963-64 and alternate years) Prerequisite: Geology 545. Brimhall
A survey of the kinds of techniques employed in geochemical prospecting. About half the course is taken up with a field problem in geochemical prospecting.
- 653. Determinative Mineralogy.** (4:2:4) S. Prerequisite: Geology 551. Phillips
Instruction in universal stage, polished opaque section, powder x-ray diffraction, and other advanced methods of mineral identification.
- 655. Igneous and Metamorphic Petrology.** (4:3:2) F. (Offered 1962-63 and alternate years) Bullock
A detailed study of the metallic ore deposits, their origin, occurrence, and cation, and distribution.
- 661. Ore Deposits.** (4:3:2) F. (Offered 1963-64 and alternate years) Prerequisite: Geology 460. Bullock
A detailed study of the metallic ore deposits, their origin, occurrence, and distribution. Emphasis is placed on the western mining districts.
- 662. Non-Metallic Deposits.** (3:3:0) S. (Offered 1963-64 and alternate years) Phillips
A detailed study of non-metallic mineral deposits, their mode of occurrence, and their application in the modern industrial world.
- 670. Sedimentation and Sedimentary Tectonics.** (4:3:2) F. (Offered 1962-63 and alternate years) Bissell
Fundamental concepts in the sciences of sedimentology, and laboratory exercises illustrative of processes of sedimentation followed by review and discussions of tectonic environments which control sedimentation. Field trips are taken into areas illustrative of the subject matter.
- 671. Sedimentary Petrology and Petrography.** (4:3:2) S. (Offered 1962-63 and alternate years) Bissell
Field and laboratory classifications and studies of the sedimentary rocks. Particular emphasis is placed on carbonate petrology and petrography, and application to oil occurrence.
- 678. Subsurface Methods.** (4:2:4) S. (Offered 1963-64 and alternate years) Prerequisite: Geology 551. Bushman
Designed to acquaint the student with the tools and techniques employed by the sub-surface geologist in describing the lithologic characteristics of sub-surface rock; the use of this information for interpreting sedimentation environments, geologic structures, and stratigraphic correlation.

680. **Micropaleontology.** (3:2:2) F. (Offered 1963-64 and alternate years) Pre-requisite: Geology 480 or 581. Clark
A systematic study of the geologically important micro-fossils, including techniques, morphology, and stratigraphic significance. Conodonts, ostracodes, foraminifera are stressed.
681. **Quantitative Paleontology.** (3:3:0) F. (Offered 1962-63 and alternate years) Prerequisite: Geology 480 or 581. Rigby
Introduction to biometrics and systematics of fossil organisms and of fossil assemblages.
682. **Vertebrate Paleontology.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Geology 480 or 581, or consent of instructor. Clark
A study of the backboned animals through time (Agnatha through Mammalia). Morphology, ecology, phylogeny, and stratigraphic significance are stressed.
685. **Paleoecology.** (4:3:2) (Offered 1963-64 and alternate years) Prerequisite: Geology 480 or 581. Rigby
Interpretation of ancient environments and of the adaption of organisms to these environments as shown by a systematic treatment of each of the major taxonomic groups and by selected analyses from the professional geologic literature.
696. **Readings and Conference in Geology.** (1-4:1-4:0) F.S.Su. Staff
697. **Directed Field Studies.** (Arr.) F.S.Su. Staff
Supervised field work in any of the fields of specialization in geology for candidates of master's degree.
698. **Research.** (1-4:1-4:0) F.S.Su. Staff
699. **Thesis for Master's Degree.** (1-4:1-4:0) F.S.Su. Staff
797. **Directed Field Studies.** (Arr.) F.S.Su. Staff
Supervised field work in any of the fields of specialization in geology for candidates of Ph.D. degrees.
799. **Dissertation for Doctor of Philosophy Degree.** (Arr.) F.S.Su. Staff

Graduate Department of Education

Professors: Oakes (chairman, 129 McKay), Burrup, Callahan, D. Christensen, Clarke, Downing, Egbert, Law, Lloyd, Moffitt, Morrill, Nuttall, Romney, Woolf (emeritus).

Associate Professors: Alley, Babcock, Barnett, Bauer, L. Christensen, Crnkovic, Daines, Harris, Krider, Ovard, Parker, Read.

Assistant Professors: Flandro, Gagon, Harms, Jensen, McPhie, Moses, Ord, Utley, Wilcox.

The Graduate Department of Education is organized to offer courses for all persons engaged in professional education and service courses to graduate students in other disciplines.

Programs are designed to give special training to school administrators, school business managers, supervisors, curriculum directors, educational psychologists, school psychologists, specialists in counseling and guidance, teachers of special education, master teachers and other specialists. Such programs are at once intensive and broad in scope. They are designed to give the depth and the breadth needed by specialists in education.

Graduate Degrees. The department offers programs leading to graduate degrees at both the master's and doctorate levels. The Master of Arts, the Master

of Education, and the Master of Science are offered. In addition, both the Doctor of Education and the Doctor of Philosophy are offered by this department.

A program for the two-year certificate—specialist in educational administration—is offered for school superintendents, assistant superintendents, and elementary and secondary school principals.

Requirements for Specialization in Areas of School Administration

Graduate courses for the preparation, certification, and professional development of school administrative and supervisory personnel are offered. Academic work is available for those preparing for professional service in the areas of general administration—including school superintendency, director of educational research, administrative assistants, and others), the school principalship (elementary and secondary), school business management, general supervision (supervisor, director of instruction, curriculum director, and others), and administration of higher education.

Admission to the department with full graduate status is contingent upon the following:

1. Completion of 22 semester hours of education or a valid teaching credential.
2. Compliance with admission requirements of the Graduate School.
3. Evidence of the student's ability to do satisfactory graduate work (to be determined by the faculty of the department).

Masters' Degrees

The department offers the Master of Arts, the Master of Science, and the Master of Education degrees in areas of school administration. See the general requirements for masters' degrees elsewhere in this catalog.

It should be noted that a candidate must complete no less than one year as a teacher before completing the field project in the Master of Education program.

Majors: Recognizing the need for providing a broad professional background for administrative-supervisory leadership in education, the department has the following policies regarding courses:

1. Persons preparing for elementary and secondary school principalships and school supervisors can pursue majors in the department culminating in the master's degree.
2. Persons preparing for school superintendencies and district level administration should elect the two-year graduate certificate—specialist in educational administration—or the doctorate in educational administration. Should a student want a master's degree as part of his preparation he should register for and complete a thesis or field project at the appropriate time during his training.
3. All students must complete a core of courses covering general administration, supervision, and research. These include:
Ed. 660. Research and Thesis Writing. (Does not count for hours toward major.)
Ed. 675 Organization and Administration of Public Schools.
Ed. 677 Public School Finance.
Ed. 680. Field Work in Educational Administration. (Not required of those who have had educational administrative experience.)
Ed. 685. Supervision of Education.
4. Those interested in elementary principalship should take, in addition to the above listed courses, Ed. 678 and 768. Minors should be selected from the areas of the college or other departments approved by their advisors.
5. Those interested in secondary principalship should take, in addition to the above courses, Ed. 679 and 768. Minors should be selected from the areas of the college or other departments approved by their advisors.

6. Those interested in supervisory positions other than principalships should take, in addition to the courses listed in Item 3 above, Ed. 678 or 679 and 768.

Minors: Those minoring in the department should take Ed. 675, 677, 685, and two to three additional hours in courses to be selected by the student and his advisor from offerings in the department.

Two-Year Certificate—Specialist in Educational Administration

The department offers a two-year program planned for the preparation of school superintendents, assistant superintendents, secondary school principals, and elementary school principals. Sixty semester hours of acceptable graduate work beyond the baccalaureate degree is required. Obtaining a master's degree is encouraged but not required.

To be admitted into the program in full standing, the candidate must (1) present evidence of at least two years of successful professional experience; (2) achieve satisfactory scores on (a) the Ohio State Psychological Examination and (b) the Cooperative General Culture Test; and (3) present evidence of a satisfactory academic background in the area of his intended field of preparation.

The planned program includes the following:

1. **Education Courses Required in Two-Year and Doctoral Programs in all Departments.** (12 hours)
Ed. 601, 607, 675, or 636, 656, 660.
2. **Courses Required of all Students in Educational Administration.** (9-12 hours)
Ed. 552, 677, 685, 687.
Ed. 680 is required also of all who have had no school administrative experience.
3. **Courses Required in Cognate Areas.** (8 hours)
A minimum of 8 semester hours in courses approved by the advisory committee is required in one or more of the following fields: economics, political science, psychology, sociology, or business administration. The following courses are required: Sociology 449; Political Science 535.
4. **Required Education Courses in Special Areas of Educational Administration.**
 - Elementary School Principals.** (9 hours)
Ed. 626, 678, 760, 768. In addition the candidate is required to take any of the following courses in which he had not had acceptable undergraduate preparation: Ed. 623, Science in the Elementary Schools; Ed. 625, Social Studies in the Elementary Schools; Ed. 632, Reading in the Elementary Schools; Ed. 633, Language Arts in the Elementary Schools; Ed. 634, Arithmetic in the Elementary Schools.
 - Secondary School Principals.** (13 hours)
Ed. 550, 639, 679, 762, 763, 768.
 - Superintendents.** (9 hours)
Ed. 678, 679, 690, 775.
5. **Restricted Electives.**
The indicated minimum semester hours must be selected from the following courses:
 - Elementary School Principals.** (10 hours)
Ed. 560, 608, 657, 658, 682, 690, 762; Sociology 512.
 - Secondary School Principals.** (10 hours)
Ed. 608, 627, 652, 657, 658, 682, 683, 684, 690, 765; Sociology 512.
 - Superintendents.** (14 hours)
Ed. 608, 626, 627, 639, 652, 662, 682, 683, 684, 765, 767, 768, 770, 771, 772, 773, 786; Sociology 512.

Students desiring to prepare themselves as **superintendents** normally will elect to take from the above courses: Ed. 682 767, 768, 772.

Students desiring to prepare themselves as **assistant superintendents for school business management** normally will elect to take from the above courses: Ed. 683, 765, 773, 786.

Students desiring to prepare themselves as **assistant superintendents for instruction** normally will elect to take from the above courses: Ed. 626, 639, 662, 767, 768.

Students desiring to prepare themselves as **assistant superintendents for teacher personnel** normally will elect to take from the above courses: Ed. 682, 768, 772.

Students desiring to prepare themselves as **assistant superintendents for pupil personnel** will normally elect to take from the above courses: Ed. 627, 652, 684.

6. **Free Electives:** The remaining hours of credit to be taken may be chosen from either education or cognate area courses as determined by the student and his advisor.
7. **Comprehensive Examination:** A comprehensive examination is administered near the end of the student's last semester of work. A satisfactory score must be achieved in order to be recommended for the specialist in educational administration certificate.
8. **Residence:** A student must establish residence by spending at least one full semester on campus during the regular school year.
9. **Transfer of Credit:** Ten semester hours of credit may be transferred from B.Y.U. off-campus centers. Students from other accredited institutions may transfer 30 credit hours.

Doctor of Education Degree

The department offers work leading to a Doctor of Education degree in educational administration with areas of special emphasis in:

1. General school administration
 - a. Superintendent
 - b. Assistant superintendent for curriculum
 - c. Assistant superintendent for personnel
 - d. Assistant superintendent for pupil personnel
2. School business management
3. Secondary school administration
4. Elementary school administration
5. Administration of higher education
6. Administration of L.D.S. Church education programs

Admission: To receive full admission into the program, students are tested for familiarity with certain fields of significance to education. Satisfactory scores must be obtained in the following tests: (1) scholastic aptitude, (2) vocational interest, (3) personality, (4) effectiveness of expression, and (5) general educational background.

In addition, students must submit evidence of at least two years of successful professional experience and an adequate background in their intended areas of specialization.

Course Work: A minimum of seventy-five semester hours of acceptable credit beyond the baccalaureate degree is required to complete the programs in educational administration.

All students must complete 12 hours in the courses required of all graduate students in education: Ed. 601, 607, 636, 640, 656, 660, 675, and six hours in

the following courses: Ed. 677, 685, 687. Students who have had no administrative experience also are required to take Ed. 680.

A minimum of 12 hours in areas cognate to education is required of all students. The following fields are acceptable: economics, political science, psychology, sociology, and business administration. Specifically required are Sociology 449, 470; and Political Science 535.

Students planning to specialize in **elementary school administration** are required to take 17 hours consisting of the following courses: Ed. 606, 626, 760, 775, 678, 690 and 691. In addition, students are required to take any of the following courses for which there is no evidence of acceptable undergraduate preparation: Ed. 623, 625, 632, 633, 634. Students are also expected to take a minimum of 14 hours from a group of restricted electives as follows: Ed. 560, 608, 657, 658, 682, 762, 767, 773; Sociology 512. To complete the balance of the course work requirements, students are allowed a minimum of 11 to 14 hours of free electives chosen from either education or cognate areas as determined by the student and his chairman.

Students planning to specialize in **secondary school administration** are required to take 21 hours consisting of the following courses: Ed. 550, 606, 634, 672, 690, 691, 762, 763, 775. In addition, students are expected to take 12 hours from a group of restricted electives as follows: Ed. 608, 619, 627, 630, 635, 652, 657, 658, 682, 683, 684, 765, 768, 773; Sociology 512. To complete the balance of course work requirements, students are allowed a minimum of 9 to 12 hours of free electives chosen from either education or cognate areas as determined by the student and his chairman.

Students planning to specialize in the areas of **general school administration** are required to take 17 hours consisting of the following courses: Ed. 606, 678, 679, 690, 691, 773, 775. In addition students are expected to take 14 hours from a group of restricted electives as follows: Ed. 608, 626, 636, 639, 645, 652, 653, 682, 683, 684, 730, 760, 765, 767, 768, 770, 771, 772, 786; Sociology 512. From the foregoing restricted elective courses, students preparing for **school superintendencies** normally will elect Ed. 682, 767, 768, 786. Students preparing for the area of **school business management** normally will elect Ed. 683, 765, 767, 786. Students preparing themselves for the position of **assistant superintendent of instruction** normally will elect Ed. 626, 639, 730, 767, 768. Students preparing themselves for the position of **assistant superintendent for teacher personnel director** normally will elect Ed. 682, 768, 772. Students preparing themselves for the position of **assistant superintendent for pupil personnel** normally will elect Ed. 645, 652, 684, 768. Students planning to specialize in the area of **administration of higher education** are required to take Ed. 653, 768, 771, 772.

Students preparing for the doctorate in educational administration with an emphasis in L.D.S. religious education are required to complete the 12 hours of course work required of all doctoral students in educational administration. Students must complete a 30 hour core in the College of Religious Instruction. Details are available in the College of Religious Instruction. Additional required courses in education consisting of 21 hours are: Ed. 606, 639, 642, 679, 682, 690, 691, 768, 775. The balance of course work may be selected as determined by the student and his advisory committee. Special consideration should be given to course work in the area of counseling.

Examinations. A comprehensive examination is administered to all doctoral students after approximately 60 semester hours have been completed. A final written examination is administered to all doctoral students at the completion of their course work. The final oral examination is administered at the conclusion of the field project.

Field Project and Report. A research project for the improvement of a program of administration or instruction must be carried out under the direction of the student's advisory committee, after he has passed the final written examination and advanced to candidacy. The report of the field study must meet the same standards of format as the Doctor of Philosophy dissertation and must be submitted under the same schedule and publication requirements.

Requirements for a Minor in Philosophy of Education

This area in the department currently is organized to provide service courses for graduate students in other areas of the College and University. Normally students do not major in subject areas of the department; therefore, a major is not provided at the master's level. A minor in this field is provided for graduate students.

Graduate students enrolling in the area of philosophy of education are expected to take first the basic course, Ed. 601. Variations to this must be approved by the area advisors.

Requirements for Specialization in Areas of Educational Psychology, Personnel and Guidance, Special Education, and School Psychology

Master's Degree

Requirements include: (1) completion of the required number of hours as stipulated by the general University requirements, including specific courses required by the program for specialization. (2) a thesis appropriate to the program of specialization, and (3) satisfactory performance in a final oral examination.

Specific requirements for each area of specialization are given below:

Educational Psychology. To be admitted to the program the student must have elementary or secondary certification. He must have completed or must complete in addition to the regularly prescribed courses, twelve semester hours in basic psychology courses.

Required course work must include: Ed. 550, 554, 560, 645, 646, 656, 658, and 660.

Personnel and Guidance. Students should have a suitable background of course work in a field such as psychology, sociology, or human development and family relationships.

Except with the written approval of the department, the student must be certified prior to completing the master's degree. If the student has not completed the following courses or their equivalent prior to entering the graduate program, he must take, in addition to the prescribed courses, Ed. 550 and 552, and Psychology 111 and 378.

Required graduate courses are: Ed. 645, 646, 651, 660, 671 and one course from Ed. 647, 649 or 652 and Psychology 640.

School Psychology. This program is offered jointly with the Psychology Department. To be admitted to this program the student must have elementary or secondary certification, and must have completed, or must complete in addition to the specified courses, the following: Ed. 550, 552, 560, and Psychology 111, 185, 320, 321, 360 and 365 or 311, 378, 445 or 626 and 627, 540 and 550.

Required graduate courses are: Ed. 554, 645, 646, 657, 667, 668, 671; Psychology 640, 740, 741 and 743; either Ed. 656 or Psychology 560 and; six semester hours of practicum—four in education and two in psychology. (A student majoring in Psychology takes four semester hours of psychology and two hours of education practicum.)

Special Education: In this program the student is prepared for work with children having intellectual, motor, or academic handicaps. To be admitted to the graduate program in special education, the student must have a valid teaching certificate plus appropriate experience.

The student must choose an area of specialization and complete a sequence of courses in this area. Observation and participation as well as practicum are a required part of each sequence.

Doctoral Degree

The department offers both the Doctor of Philosophy and the Doctor of Education degrees in educational psychology. These two doctoral programs prepare the candidate to serve in essentially different capacities. As a result, the potential candidate should discuss his goals with the chairman or some other member of the department before making a definite selection.

Requirements: Full graduate standing in educational psychology is contingent on (1) elementary or secondary certification and (2) twelve hours of psychology, of which at least nine must be in basic psychology courses. In addition to these two requirements, the potential candidate for the Doctor of Education degree must have completed two years of successful professional experience and must have had a course in either child or adolescent psychology.

Doctor of Philosophy Degree: In completing a doctoral major in educational psychology a candidate will be expected to have competence in each of eight specified areas and to have gained more extensive coverage in at least one of these areas. Basic competence is defined as ability to pass a comprehensive examination covering the eight areas. In general, the examination is drawn from subject matter covered in the following courses:

1. Statistics and research methods: Ed. 552, 554, and 660.
2. Measurement: Ed. 645 or 658; Psychology 378 and 640.
3. Learning: Ed. 656 and 791; Psychology 560.
4. Guidance and counseling: Ed. 550, 646, and 671.
5. Human development and personality: Ed. 657; Psychology 550.
6. Special education: Ed. 560.
7. Psychological and sociological foundations: Psychology 374, 610, and 611; Sociology 504 or 512.
8. Educational foundations: Ed. 601, 631, 636 and 675.

Established areas of specialization are:

1. Statistics and research methods:
Prerequisites: Ed. 552 and 554, or equivalent: Math 213, Statistics 521, 522, and 531; Psychology 574.
2. Measurement: Ed. 612, 790; Psychology 740.
3. Human development and personality: H.D.F.R. 510, 611; Psychology 532 and 750.
4. Special education: Ed. 566, 567, 667, 668, 691 and either 672 or 673.

A student may also be required to take courses in his specific area of interest upon recommendation of his advisory committee. Twelve semester hours of acceptable course work in a related minor and a dissertation must also be completed.

Doctor of Education Degree: The candidate is expected to complete a minimum of 88 semester hours to include:

1. A basic program: Ed. 550, 552, 554, 560, 645, 646, 647, 649, 651, 652, 658, 660, 671, 690, 741, 790, 791, and Psychology 540, 560, and 750.
2. Three supporting fields of 24 hours with not less than 6 hours in any one of the three fields.

Suggested courses in supporting fields are:

- a. Educational program and its improvement:
Ed. 534, or 626, 636, 639, 642, and 675, 684.
- b. The school and the social order:
Ed. 601, 606, and Sociology 504, 512.

- c. Psychological foundations:
Psychology 378, 540, 550 and 610.
- 3. An additional 16 hours chosen in consultation with the chairman of the advisory committee.
- 4. Completion of field study dealing with an appropriate problem.

REQUIREMENTS FOR SPECIALIZATION IN AREAS OF ELEMENTARY EDUCATION AND SECONDARY EDUCATION

The department offers course work and training leading to the Master of Education, the Master of Science, and the Master of Arts degrees. Students entering these programs must give evidence of sufficient background in public school work to enable them to successfully undertake graduate study. A major in this area is designed to provide specifically the needs of public school supervisors, directors of curriculum, individuals seeking to become master teachers at the elementary or secondary levels, and other public school personnel with particular interests in the instructional and curriculum areas. For a complete description of programs and for details regarding requirements, the student should consult the chairman of the department prior to or at the time of application for admission to the Graduate School.

Graduate Majors in the Field of Elementary Curriculum and Teaching are Required to take the Following Courses:

1. Ed. 560, Tests and Measurements for Classroom Teachers; or Ed. 658, Educational Tests and Measurements.
2. Ed. 610, Development of Instructional Materials.
3. Ed. 601, Comparative Current Educational Philosophy.
4. Ed. 636, Curriculum Development in the Secondary Schools.
5. Ed. 639, Development of Instructional Methods in the Secondary School.
6. Ed. 660, Educational Research and Thesis Writing.
(Required but does not count toward major or minor hours requirements.)
7. Elective courses in complete major requirements which must be approved by the department chairman.

Graduate Courses in Education

- 514, 515 (614, 615). Analysis of In-Service Problems.** (1-3:1-3:1 ea.) F.S.Su. Staff
- 534. Improved Practices in Elementary Teaching.** (3:3:1) F.Su. Staff
Current concepts in elementary education with observation and analysis of some of the best teaching practices. Designed to meet the needs of persons seeking a refresher course, and for prospective administrative personnel in the elementary schools.
- 547. The Place and Development of Skills in Various Approaches to Reading.** (3:3:0) F.Su. Staff
Detailed consideration of the reading skills developed in kindergarten through grade twelve with emphasis on word analysis; the development of these skills in the various approaches to reading.
- 550. Introduction to Guidance Services.** (2:2:0) F.S.Su. Downing, Egbert, Jensen, Moses, Nuttall
Principles and practices of pupil personnel services in the public schools. Designed for prospective teachers of both elementary and secondary levels. Required but may not be counted as part of the 30 hours for the master's degree by students majoring in this department.
- 552 (540). Statistical Methods.** (2:2:0) F.Su. Bauer, Egbert, Nuttall
Consideration is given to measures of central tendency, variability, and linear correlation. Elementary concepts of probability and inference are

discussed. Required but may not be counted as part of the 30 hours for the master's degree by students majoring in this department.

- 554 (541). Advanced Statistics.** (2:2:0) S.Su. Prerequisite: E.R.S. 540.
- 560 (410). Tests and Measurements for Classroom Teachers.** (2:2:0) S.Su. Harris, Harrison
Emphasizes techniques for construction and use of classroom tests as measuring and teaching devices; consideration also given to standardized tests and evaluation techniques other than testing. Fulfills California certification requirements for class in measurements.
- 561. Standard English Braille.** (2:2:0) Arr. Staff
- 562. Advanced Standard English Braille.** (2:2:0) Arr. Prerequisite: E.R.S. 561. Staff
- 563. Problems in the Education of the Visually Handicapped.** (3:3:0) Arr. Pre-requisite: consent of instructor. Staff
- 564 (526). Arts and Crafts for the Handicapped.** (2:2:1) F.Su. Staff
Arts, crafts, and other media as they may be adapted to meet the needs of individuals with disabilities.
- 566 (666). Problems in the Education of Orthopedically Handicapped Children.** (3:3:0) F. Su. Prerequisite: E.R.S. 560. Krider, Wilson
- 567 (667). Problems in the Education of Mentally Retarded Children.** (3:3:0) S.Su. Prerequisite: E.R.S. 560. Krider, Wilson
- 568 (668). Observation and Participation in Special Education.** (2:1:3) F.S.Su. Prerequisite: consent of instructor. Wilson
- 601 (604). Comparative Current Educational Philosophy.** (3:3:0) F.S.Su. (m) Alley
- 603 (605). Educational Classics and Contemporary Issues.** (3:3:0) S. (m) Alley, Lloyd
- 606 (621). History of Education in Europe and America.** (4:4:0) F.Su. (m) Hardy
- 607 (631). Education in a World Setting.** (2:2:0) S. Lloyd, Romney
- 608 (642). Education in the Social Order.** (2:2:0) S.Su. (m) Ovard
- 610 (605). Development of Instructional Materials (Audio-Visual Aids).** (2:2:1) F.Su. Prerequisite: Instruction 406 or equivalent.
An advanced course designed to follow Instruction 406.
Principles of learning and the unique contributions of instructional materials to the curriculum. Of primary concern is the selection, integration, sources, and administration of instructional materials. Construction and use of specialized materials.
- 611 (608). Radio, Television, and Motion Picture Photography in Education.** (2:2:1) Su. Staff
Utilization in the classroom and in public relations. Current programs, production techniques, recording of programs, and the role of mass media in learning. The development and potential of educational television.
- 612. Supervision of Student Teachers.** (2:2:0) Su. Staff
For those desiring a well-rounded view of the student teaching program.
- 613 (673). Teaching Speech in Secondary Schools.** (2:2:0) Su. Staff
- 616. Analysis of In-Service Problems.** (1-3:1-3:1 ea.) F.S.Su. Staff

- 619 (663). Directing Out-of-Class Activities in Secondary Schools.** (2:2:0) Su. Staff
Examination of successful practices in scheduling and directing out-of-class activities. The effect of current scientific curriculum emphasis on out-of-class activities is explored.
- 622. Advanced Study in Early Childhood Education.** (2:2:0) F.Su. Staff
Theory and analysis of current practice in schools as related to the significance and problems of early childhood education.
- 623. Science in the Elementary School.** (2:2:0) S.Su. Staff
Designed to give experienced teachers insight into the teaching of elementary science. Includes concentration in unit instruction and methods of presenting science concepts to children.
- 624. Advanced Arts and Crafts for Elementary Teachers.** (2:2:1) F.Su. Prerequisite: consent of instructor. Staff
Exploring ideas and materials for the instruction of elementary school children. Attention is given to the specific needs of each course member.
- 625 (635). Social Studies in the Elementary School.** (2:2:0) S.Su. Staff
The scope and sequence of the social studies program, its objectives in developing democratic citizenship, and the methods employed in accomplishing this aim.
- 626 (646). Development of Instructional Methods in the Elementary School.** (2:2:0) S.Su. Staff
Not open to students who have taken Instruction 676.
Problems, principles, and issues related to method; assessment of readiness; problems of organizing pupils for instruction, guiding, and pacing; selection of materials; and evaluation.
- 627 (667). Teaching Reading in Secondary Schools.** (2:2:0) F.Su. Staff
Methods of teaching reading in the secondary school and their adaptation. Role of the subject-matter specialist in the reading program.
- 629 (659). Secondary School Curriculum Workshop.** (2:2:0) Su. Staff
Designed for an analysis of in-service curriculum problems.
- 630 (670). Teaching Mathematics and Science in Secondary Schools.** (2:2:0) Su. Staff
Designed especially for in-service teachers. Emphasis given to the newer methods, materials, and trends in science and mathematics instruction. Lesson plans developed.
- 631. Curriculum Development in the Elementary School.** (2:2:0) F.Su. Staff
Not open to students who have taken Instruction 656.
Principles and procedures for organizing the instructional program; patterns of curriculum organization; and techniques for change, evaluation, and stagilization of curriculum.
- 632 (642). Reading in the Elementary School.** (2:2:0) F.Su. Staff
An overview of the reading program; comparison of different approach to the teaching of reading and word recognition skills studied in greater detail. Opportunities are provided for students to work on their own problems in teaching reading.
- 633 (641). Language Arts in the Elementary School.** (2:2:0) F.Su. Staff
Best practices in modern methods of instruction in listening, speaking, reading, and writing with their related skills.
- 634 (644). Arithmetic in the Elementary School.** (2:2:0) S.Su. Staff
Concepts in arithmetic, and various activities which will help students acquire correct arithmetical concepts. Special attention on the contributions of research in teaching arithmetic.

- 635 (672). Teaching Social Studies in Secondary Schools. (2:2:0) S.Su. Staff**
 Designed to broaden the understanding of curriculum and instruction in secondary school social studies. Relates methods and techniques to the objectives of the social studies.
- 636 (656). Curriculum Development in the Secondary School. (2:2:0) S.Su. Staff**
 Not open to students who have taken Instruction 631.
 Analysis of secondary curriculum development in terms of psychological and philosophical principles. Curriculum issues, trends, and current practices are examined.
- 639 (676). Development of Instructional Methods in the Secondary School. (2:2:0) F.Su. Staff**
 Not open to students who have taken Instruction 646.
 A general, intensive analysis of the instructional methods used at the secondary level utilizing principles developed from psychology, sociology, and philosophy.
- 640 (682). Curriculum of the Junior College. (3:3:0) F.S.Su. Staff**
 Analysis of junior and community college curriculum practices throughout the United States. Relationship of philosophy to curriculum emphasis. Examination of issues, trends, and current practices.
- 642 (684). Methods of Higher Education Instruction. (3:3:1) F.S. Staff**
 Identification of teacher and pupil activities required for conceptual learning at the college level. Appreciation of the college teacher's responsibilities and role as a member of a college staff. Insight into the backgrounds, abilities, interests, and goals of college students and what these mean for instruction. Familiarity with newer tools, teaching materials, and instructional practices.
- 644 (685). Directed Teaching in Higher Education. (2-4:1-2:5-10) F.S.Su. Pre-requisite: Instruction 684. Staff**
 Designed to help students become accomplished and skilled teachers of college classes; to participate effectively as a member of a college staff; and to prepare for and complete the steps necessary to be placed into a college position.
- 645 (611). Guidance Testing and Diagnosis. (3:3:0) F.Su. Prerequisites: E.R.S. 540, 550. Jensen, Moses**
- 646 (620). Counseling Theory and Practice. (3:3:0) F.S.Su. Prerequisites: E. R.S. 540, 550. Downing, Moses, Parker**
- 647 (622). Group Techniques for Counselors. (2:2:0) S.Su. Prerequisites: E. R.S. 550 and 620. Bauer, Downing, Jensen**
- 648 (624). Industrial Counseling. (2:2:0) Arr. Prerequisites: E.R.S. 550, 620, 651. Staff**
- 649 (625). Advanced Counseling Theory. (2:2:0) S.Su. Prerequisites: E.R.S. 620, Psychology 550. Kelly, Parker, Reid**
- 650. Guidance Workshop. (2:2:0) Arr. Prerequisite: E.R.S. 550. Staff**
- 651. Informational Services in Guidance. (3:3:0) S.Su. Prerequisite: E.R.S. 550. Downing**
- 652 (653). Administration of Guidance Services. (2:2:0) S.Su. Prerequisite: E. R.S. 550. Downing**
- 653 (656). Student Personnel Services in Higher Education. (2:2:0) S. Pre-requisite: E.R.S. 550. Lloyd**
- 656 (601). Advanced Educational Psychology. (2:2:0) S.Su. Prerequisite: E.R.S. 403. Bauer, Harris**

- 657 (606). **Behavior Problems in the Schools.** (2:2:0) F.S.Su. Prerequisites: E.R.S. 403, 550. Bauer, Downing
- 658 (610). **Educational Tests and Measurements.** (2:2:0) F.Su. Prerequisite: E.R.S. 540. Bauer, Harris, Moses
- 659 (502). **Educational and Psychological Principles of Programmed Learning.** (3:3:0) Prerequisite: Psychology 560 or Education 656. Bauer, Egbert
- 660 (641). **Educational Research and Thesis Writing.** (2:2:0) F.S.Su. Prerequisite: E.R.S. 540. Egbert, Nuttall
662. **Workshop in the Study of the Mentally Retarded.** (4:4:0) Su. only. Krider, Wilson
663. **Workshop in the Study of the Visually Handicapped.** (4:4:0) Su. only. Staff
- 664 (661). **Workshop in the Study of the Gifted Child.** (4:4:0) Su. only. Krider, Wilson
- 666 (664). **Special Education Services in Public Schools.** (2:2:0) Su. only. Staff
- 667 (612). **Diagnosis of Achievement Difficulties.** (2:2:0) F.Su. Prerequisite: E.R.S. 610 or 611. Bauer, Harris, Krider
- 668 (630). **Corrective Teaching Techniques.** (2:2:0) S.Su. Prerequisite: E.R.S. 612 or consent of instructor. Krider
- 670 (675). **Internship in School Psychology.** (2-4:1-2:4-8) S. Prerequisite: consent of instructor. Moses
- 671 (670). **Practicum in Testing and Counseling.** (5:2:10) F.S.Su. Prerequisite: consent of instructor. Downing, Jensen, Parker
- 672 (676, 677). **Practicum in Special Education.** (2:0:6) S.Su. Prerequisite: consent of instructor. Wilson
- 673 (678, 679). **Practicum in Corrective Teaching.** (2:0:6) S.Su. Prerequisite: consent of instructor. Krider
- 675 (600). **Organization and Administration of Public Schools.** (3:3:0) F.S.Su. (m) Morrill, Oakes
- 677 (610). **Public School Finance.** (2:2:0) F.S.Su. (m) Burrup, Nuttall
- 678 (631). **The Elementary School Principalship.** (2:2:0) F.S.Su. (m) Harms, Morrill
- 679 (644). **Work of the Secondary Principal.** (2:2:0) F.S.Su. (m) Burrup
680. **Field Work in Educational Administration.** (3:1:4) F.S.Su. (m) Staff
- 682 (619). **Personnel Problems of the School Staff.** (2:2:0) F.S.Su. (m) Barnett
- 683 (651). **Administration of Auxiliary Services.** (2:2:0) F.Su. (m) Barnett
- 684 (654). **Administration of Pupil Personnel.** (2:2:0) S.Su. (m) Ovard
- 685 (665). **Supervision of Education.** (2:2:0) F.S.Su. (m) Harms, Moffitt
- 687 (673). **School Law.** (2:2:0) F.S.Su. (m) Barnett, Burrup, Oakes
- 690, 691. **Seminar.** (2:2:0 ea.) F.S.Su. (m) Staff
- 693, 694. **Independent Readings.** (1-2:3-6:0 ea.) F.S.Su. (m) Staff
698. **Field Project.** (2-4:Arr.:Arr.) F.S.Su. Staff
699. **Thesis for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su. Staff

- 706 (646). Objectives and Programs of Continuing Education. (2:2:0) Su. Alley
- 709 (662). Philosophy of Program Planning. (2:2:0) S. Alley, Oakes
- 730 (640). Evaluation of Educational and Psychological Literature. (2:2:0) S. Egbert
Su.
- 741 (771). Practicum in Counseling. (3:1:8) S.Su. Prerequisite: consent of instructor.
- 760 (710). Problems of Elementary School Administration. (2:2:0) S.Su. (m) Harms
- 762 (712). The Junior High School. (2:2:0) S.Su. (m) Ovard
- 763 (723). The Senior High School. (2:2:0) F.Su. (m) Ovard
- 765 (730). Business Administration of the Public Schools. (2:2:0) S.Su. (m) Burrup
- 767 (737). Research and Survey Procedures in Educational Administration. (2:2:0) S.Su. (m) Morrill, Oakes
- 768 (738). Leadership Functions in Educational Administration. (3:3:0) F.S. Su. (m) Morrill
- 770 (741). Organization and Administration of Continuing Education. (3:3:0) S.Su. (m) Ovard
- 771 (748). College and University Organization and Administration. (2:2:0) F. Su. (m) Oakes
- 772 (749). Evaluation and Accreditation of Educational Institutions. (2:2:0) F. Su. (m) Staff
- 773 (750). Public School Building Programs. (2:2:0) S.Su. (m) Morrill
775. Educational Administrative Theory. (3:3:0) F.S.Su. (m) Oakes
786. Problems of Taxation and Financial Support of Public Institutions. (2:2:0) F.Su. (m) Burrup, Nuttall
790. Seminar: Educational Measurement. (2:2:0) S.Su. Prerequisite: consent of instructor. Harris, Jensen
791. Seminar: Learning Theory Applied to Education. (2:2:0) S.Su. Prerequisite: Psychology 560. Bauer, Egbert
798. Field Project for Ed.D. Degree. (Arr.) F.S.Su. Staff
799. Dissertation for Ph.D. Degree. (Arr.) F.S.Su. Staff

Health and Safety Education

Professors: Nicholes, Hart, Hartvigsen.

Associate Professors: Watters (chairman, 220 SFH), Geddes.

Assistant Professor: Duerden.

Requirements

Plan "A": The basic requirements for the master's degree in health education are the same as the general Graduate School requirements. In addition, an oral examination is administered to each student early in the first semester. The purpose of the examination is to give guidance in the courses and studies leading to the master's degree. Recommended courses are set up after consultation with the college graduate chairman and the major chairman.

Plan "B": The basic requirements for the master's degree in health education are the same as Plan "A" with the following exceptions:

- (1) The candidate will not be required to write a thesis.
- (2) The candidate will complete not less than 32 semester hours of credit, approved by his advisory committee, not less than 18 hours will be taken in his major field, and not less than 10 hours will be taken in the approved minor field or not more than 12 hours in two or more supporting fields to the major.
- (3) The course, "Methods of Research in Health, Physical Education, and Recreation," P.E. 692, (3:3:0) will be required the first term of residence. In this class the candidate must complete a research project and write it up in the same form as a thesis is presented.
- (4) The candidate will also be required to work with the Utah County Health Department on a specific practical phase or problem of community health.

Graduate Courses

- 501. Health Education Workshop.** (1-2:Arr.:0) F.S.Su. Staff
Intended primarily for extension credit and/or summer school. Involves a presentation of health education problems followed by discussions. Conducted on a workshop basis.
- 521. Evaluation and Selection of School Health Material.** (2:2:0) F. Duerden
Pamphlets, brochures, films, textbooks, and other school health resource materials are evaluated and selected for present and future use.
- 530. First Aid Instructor.** (2:2:1) F. Watters
Designed to qualify instructors in Red Cross first aid, so that they may conduct classes in qualifying individuals for standard and advanced Red Cross cards.
- 551. Field Work in Community Health.** (2:Arr.:Arr.) S. Prerequisite: Health 451 Duerden
Designed to broaden the understanding of community health agencies, their roles, programs, and relationships. Accomplished by field introductions to the various official and voluntary health agencies followed by the selection of agencies in which to do field work during the semester.
- 552. School Health Services.** (2:2:0) S. Staff
Considers desirable school health services and functions and relationships to public education and education law. Coordinates school health services with community programs.
- 560. Stimulants and Depressants.** (2:2:0) F. Nicholes
The physiology and biological chemistry of stimulants and depressants.
- 561. Health of the Body Systems.** (3:3:0) S. Prerequisite: Zoology 365 or equivalent. Nicholes
- 693. Research in Health Sciences.** (2:1:2) F.S. Staff
Independent and/or directed research in problems associated with the health sciences. Gives credit to graduate students involved in directed or independent research from grant-in-aid, fellowship, or contract grant support.
- 694. Seminar in Readings.** (2:2:0) S.Su. Staff
- 696. Seminar in Problems.** (1:1:0) F.Su. Staff
- 698. Field Project.** (1-4:Arr.:Arr.) S. Staff
- 699. Thesis for Master's Degree.** (1-6:2-6:0) F.S.Su. Staff

Courses outside of major field and considered as direct support of the major in health and safety education:

Bacteriology 121. General Bacteriology. (3:3:2)

or

Bacteriology 331. Microbiology. (4:2:6)

Bacteriology 311. Sanitation and Public Health. (2:2:0)

Bacteriology 371. Daily Microbiology. (2:1:3)

Bacteriology 391. Clinical Pathology. (2:1:3)

Bacteriology 501. Pathogenic Microbiology. (2:1:3) (Bacteriology 121, prerequisite)

Bacteriology 502. Pathogenic Microbiology. (2:1:3)

Bacteriology 511. Immunology. (3:2:3)

Bacteriology 551. Advanced Microbiology. (3:3:0)

Bacteriology 611. Advanced Immunology. (2:2:0)

Botany 376. Genetics. (3:3:0) (Botany 101 or Zoology 105, prerequisite)

Botany 377. Secondary Teaching Procedures in Biology. (3:3:1)

Chemistry 101. Introductory Inorganic Chemistry. (4:4:3)

or

Chemistry 105. General College Chemistry. (4:4:2)

or

Chemistry 111. Principles of Chemistry. (4:5:0)

or

Chemistry 580. Metabolic Processes. (2:2:0)

E.R.S. 540. Statistical Methods. (2:2:0)

E.R.S. 550. Introduction to Guidance Services. (2:2:0)

E.R.S. 620. Counseling Theory and Practice. (3:3:0)

Food and Nutrition 115. Essentials of Nutrition. (2:2:0)

Food and Nutrition 535. Advanced Human Nutrition. (2:2:0)

Food and Nutrition 675. Recent Advances in Nutrition. (2:2:0)

Food and Nutrition 695. Methods of Research in Nutrition. (2:1:4)

Geography 585. Geography of Underdeveloped Areas. (2:2:0)

H.D.F.R. 510. Advanced Child Development. (3:3:0)

H.D.F.R. 580. Introduction to Marriage and Family Counseling. (2:2:0)

Instruction 662. Philosophy of Program Planning. (2:2:0)

Physical Education 344. Physiology of Activity. (3:3:0)

Physical Education 542. Physical Inspection. (1:1:0)

Physical Education 543. Problems in Athletic Conditioning and Injuries. (2:1:2)

Physical Education 603. Planning Facilities. (2:2:0)

Physical Education 641. Principles and Practices of Physical Reconditioning. (2:2:0)

- Physical Education 660. Measurement and Evaluation. (3:3:0)
- Physical Education 691. Seminar in Administration and Public Relations. (3:3:0)
- Physical Education 692. Research Methods in Health, P.E., and Recreation. (3:3:0)
- Physical Education 694. Seminar in Readings. (2:2:0)
- Psychology 185. Physiological Psychology. (2:2:0)
- Psychology 321. Psychology of Adolescence. (2:2:0)
- Psychology 340. Mental Hygiene. (3:3:0)
- Psychology 445. Exceptional Children. (3:3:0)
- Psychology 540. Abnormal Psychology. (3:3:2)
- Psychology 585. Advanced Physiological Psychology. (3:3:0)
- Recreation 505. Administration of Community Recreation. (3:3:0)
- Recreation 609. The Recreation Program. (2:2:0)
- Sociology 370. Social Relations in Medical Organization. (3:3:0)
- Sociology 449. Community Organization, Action, and Planning. (3:3:0)
- Speech 545. Public School Audiometry. (2:2:2)
- Zoology 261. Anatomy and Physiology. (4:3:4)
- Zoology 365. Animal Physiology.
- Zoology 376. Genetics. (4:3:3)
- Zoology 662. Advanced General Physiology. (3:3:0)

History

Professors: Campbell (chairman, 336 Maeser), Hafen, Poll, Swensen.
Associate Professor: Jensen.
Assistant Professors: Addy, Hyer.

Requirements

The Department of History offers work leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees.

A student undertaking work toward a graduate degree in history is expected to offer an undergraduate major in the subject, or its equivalent. He is expected to complete, outside his graduate degree program, any courses which are specifically listed in the undergraduate major program of this University which he has not already taken. In addition to the documents required by the University for admission to degree-seeking status, the prospective student is asked to provide the department with a term paper or comparable example of his undergraduate written work in history. Unless he has already taken the departmental senior comprehensive examination as an undergraduate, he may be asked to take it prior to admission to degree-seeking status; in either case a grade of "B" is ordinarily prerequisite for such admission. Where remediable deficiencies in preparation are believed to exist, the department may prescribe undergraduate course work as a condition of admission.

Master's Degree

The requirements for a Master of Arts or Master of Science degree in history are the general requirements of the Graduate School.

Doctor of Philosophy Degree

The requirements for a Doctor of Philosophy degree in history include the general University regulations on minimum full-time study, time limit, committee supervision, and language proficiency of the Graduate School, with these additional provisions:

At least two semesters of the required full-time study at Brigham Young University must be consecutive.

Upon completion of the Master's degree or at the end of the first year of graduate study, the student must obtain the approval of the department to continue study toward the doctorate degree.

Course Requirements. Course work in the following areas must be completed:

- Historiography and methods of historical research
- Methods of teaching history in college
- A course in the 600 series in each of the fields offered for examination

Subject Examinations. When, in the opinion of the advisory committee, the student is ready, and in no case earlier than the beginning of the second year of graduate study, he may take the subject examinations in the following sequence:

Written Examinations: The student is required to show familiarity with fundamental historiography and with the basic structure and developments in (1) the area of major emphasis and research, (2) three additional areas of history, and (3) a related area offered in a department other than history. Both hemispheres must be represented in the history areas chosen. The areas of history are:

- Ancient History
- Medieval History
- Early Modern European History (1500-1815)
- Modern European History (1789-present)
- Latin American History
- History of Asia
- United States History (to 1865)
- United States History (since 1865)
- Western American History

Oral Examination: The oral examination, which must be taken not less than six months prior to the awarding of the degree, deals intensively with the factual structure, major concepts and interpretations, and bibliography in the field of major emphasis and research, and reviews also the additional areas of history and the related outside area.

All the written examinations must be satisfactorily completed before the oral examination may be taken. In the event of failure, any examination may be repeated once, no less than one semester after the unsatisfactory performance. Successful completion of the subject examinations is the basis for advancement to candidacy for the doctor's degree.

Dissertation. The student must present a dissertation which represents an original contribution to historical knowledge and which shows ability to use sources in a discriminating way. In a final oral examination, he is tested on the historical setting, subject and methods of the dissertation, and is expected to defend its conclusions.

Graduate Courses

In the Department of History, courses in the 500 series provide systematic coverage of rather broad areas of subject matter through text and library readings, lectures, reports, and class discussions. Students who have not completed the relevant courses from among History 110, 111, 120 and 121 should obtain permission of the instructor before enrolling in any of these courses.

512. Medieval Thought and Culture. (3:3:0) (Offered 1963-64 and alternate years) Swensen

520. **Eighteenth Century Europe.** (2:2:0) (Offered 1963-64 and alternate years)
Addy
522. **Nineteenth Century Europe.** (2:2:0) S. (Offered 1962-63 and alternate years)
Addy
525. **European Diplomatic History since 1815.** (2:2:0) F. (Offered 1962-63 and alternate years)
Jensen
548. **Culture of Asia.** (2:2:0) (Offered 1963-64 and alternate years) Hyer
562. **American Westward Movement to 1825.** (3:3:0) F. Hafen
563. **American Westward Movement after 1825.** (3:3:0) S. Hafen
572. **American Revolution and the Confederation.** (2:2:0) F. Backman
575. **The New Nation, 1787-1815.** (2:2:0) (Offered 1963-64 and alternate years)
Campbell
576. **Jacksonian America.** (2:2:0) (Offered 1963-64 and alternate years) Staff
577. **Civil War and Reconstruction.** (2:2:0) F. (Offered 1962-63 and alternate years)
Poll
578. **American Industrial Revolution.** (2:2:0) S. (Offered 1962-63 and alternate years)
Poll
585. **Historical Geography of United States.** (2:2:0) S. (Offered 1962-63 and alternate years)
Staff

In the Department of History, courses in the 600 series, excepting seminars, develop selected problems within the general areas of the course titles through extensive library reading, reports, and class discussions. Seminars require each participant to produce a substantial research paper. Seniors who have completed all of the specifically required courses for the undergraduate major may enroll in these courses with the permission of the instructor.

606. **Greek Thought.** (2:2:0) (Offered 1963-64 and alternate years) Swensen
618. **Renaissance and Reformation.** (2:2:0) (Offered 1963-64 and alternate years)
Jensen
621. **Modern Europe.** (2:2:0) S. (Offered 1962-63 and alternate years) Jensen
640. **The Far East.** (2:2:0) F. (Offered 1962-63 and alternate years) Hyer
650. **Latin America.** (2:2:0) (Offered 1963-64 and alternate years) Addy
656. **Southwestern United States.** (2:2:0) (Offered 1963-64 and alternate years)
Hafen
667. **Northwestern United States.** (2:2:0) F. (Offered 1962-63 and alternate years)
Hafen
670. **Colonial America.** (2:2:0) F. (Offered 1962-63 and alternate years)
Bushman
679. **Contemporary United States History.** (2:2:0) (Offered 1963-64 and alternate years)
Poll
694. **Seminar in European History.** (2:2:0) S. Staff
695. **Seminar in Western American History.** (2:2:0) F. Staff
696. **Seminar in United States History.** (2:2:0) S. Staff
697. **Seminar in Utah History.** (2:2:0) F. Staff
698. **Special Readings in History.** (1-2:0:Arr.) F.S.Su. Staff

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|---|-------|
| 699. Thesis for Master's Degree. (1-4:0:Arr.) F.S.Su. | Staff |
| 799. Dissertation for Doctor's Degree. (1-4:0:Arr.) F.S.Su. | Staff |

These courses also count in history:

- Economics 274. Economic History of the United States. (3:3:0)
 Library Science 370. Historical Bibliography and Methods of Research. (2:2:0)
 Political Science 306. History of American Political Thought. (2:2:0)
 Political Science 322. Contemporary Problems.
 Political Science 557. Government and History of Canada. (3:3:0)
 Political Science 571. American Foreign Policy. (3:3:0)
 Political Science 595. American Constitutional Development. (2:2:0)

History and Philosophy of Religion

Professors: Nibley, Rich, Yarn.

Associate Professors: Andrus, Clark, Larson, Madsen (chairman, 114 JS), Riddle.

Assistant Professors: Backman, Horsley, Palmer, Shaw.

The Department of History and Philosophy of Religion offers training leading to the Master of Arts and Doctor of Philosophy degrees. Before a student is admitted on a degree-seeking basis, the chairman of the Department of History and Philosophy of Religion will appoint a committee of the graduate faculty to interview him and evaluate his preparation and fitness for a graduate program. A detailed statement of the requirements for these degrees may be obtained upon request from the chairman of the Department of History and Philosophy of Religion.

Each graduate student must fill all the general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility for knowing and fulfilling these regulations and requirements rests with the student.**

Master of Arts Degree

After acceptance on a degree-seeking basis, the student must fulfill the following requirements under the direction of his advisory committee:

- Take, as prerequisites, Church History 441 and 442. These courses are not counted as part of the required course work.
- Attain a minimum of thirty semester hours of credit in history of religion with a grade of "B" or better in each course.
- Demonstrate proficiency in the scholarly use of one approved foreign language.
- Write an acceptable thesis embodying the results of directed research.
- Complete successfully an oral examination which will probe the subject-matter of his major and minor areas of study and the soundness of his thesis.

Doctor of Philosophy Degree

Applicants for the doctorate must demonstrate a proficiency in one tool language and an adequate subject-matter background to be considered for admission to the department on a degree-seeking basis. After such acceptance, the student must fulfill the following requirements under the direction of his advisory committee:

- Demonstrate proficiency in the scholarly use of at least two foreign languages.

- b. Attain a minimum of 75 hours of approved credit with a grade of "B" or better in each course. The following "core" courses are required of all students: History of Religion 541, 542, 551, 552, 555 and 556.
- c. Pass four four-hour comprehensive examinations demonstrating a thorough mastery of the subject-matter of his major and minor fields.
- d. Write an acceptable dissertation embodying the results of original research, and constituting a valuable addition to scholarly knowledge.
- e. Complete successfully, an oral examination of the scholarship and writing exhibited in the candidate's dissertation.

HISTORY OF RELIGION

Graduate Courses

- 541. Documents of L.D.S. Church History.** (3:3:0) F.S.Su. Andrus, Backman, Clark, Larson, Rich
 Systematic analysis of original materials including Volumes 1, 2 and 3 of the **Documentary History of the Church.**
- 542. Documents of L.D.S. Church History.** (3:3:0) F.S.Su. Andrus, Backman, Clark, Larson, Rich
 Systematic analysis of original materials including Volumes 4, 5, 6 and 7 of the **Documentary History of the Church.**
- 545. Great Figures of L.D.S. Church History.** (2:2:0) F.S.Su. Barrett
 Biographical study of significant L.D.S. Church personalities of the first half century of the restoration.
- 546. Social, Economic, and Political Thought of Joseph Smith.** (2:2:0) F.S. Andrus
- 551. The Primitive Church.** (2:2:0) F. Nibley
- 552. Christianity in the Second and Third Centuries.** (2:2:0) F.S. Nibley
- 553. Great Figures in Christian History.** (2:2:0) F.S.Su. Horsley
 Biographical study of significant Christian personalities and their contribution to Christianity from Paul to Joseph Smith.
- 554. Martin Luther, Forerunner of the Restoration.** (2:2:0) F.S.Su. Horsley
 Luther's life, theology and influence upon Protest-Christianity, with special emphasis upon the significance of Luther for Mormonism.
- 555. Comparative World Religions.** (2:2:0) F.Su. Staff
 Hinduism, Jainism, Sikhism, Buddhism.
- 556. Comparative World Religions.** (2:2:0) S.Su. Staff
 Taoism, Confucionism, Shintoism, Judaism, Zoroastrianism, and Islam.
- 558. Christian Rites and Liturgy.** (2:2:0) S. Nibley
- 559. History of Christianity in Asia.** (2:2:0) F. Palmer
- 641, 642. Special Problems in L.D.S. Church History.** (2:2:0 ea.) F.S.Su. Andrus, Backman, Larson, Rich
- 645, 646. Historical Development of L.D.S. Doctrine and Practices.** (2:2:0 ea.) F.S.Su. Andrus, Backman, Larson, Rich
- 653. History of the Papacy.** (2:2:0) F.Su. Horsley
- 654. Reformation and Counter-Reformation.** (2:2:0) S.Su. Horsley
- 657, 658. Comparative Studies in American Religions.** (2:2:0 ea.) F.S.Su. Andrus, Backman, Larson, Rich
- 659. American Religious Thought.** (2:2:0) S. Bushman

691. Seminar in History of Asian Religion. (2:2:0) S. Palmer
699. Thesis for Master's Degree. (1-6:1-4:0) F.S.Su. Staff
748. Readings in L.D.S. Church History. (1-2:1-2:0) F.S.Su.
Andrus, Backman, Larson, Rich
758. Readings in Christian History. (1-2:1-2:0) F.S.Su. Horsley, Nibley
759. Readings in the History of World Religions. (1-2:1-2:0) F.S.Su. Nibley
799. Doctoral Dissertation. (1-4:Arr.:Arr.) F.S.Su. Staff

PHILOSOPHY

Graduate Courses

593. Seminar: Philosophy of Religion. (2:2:0) S.Su. Madsen
594. Seminar: Philosophy of Science. (2:2:0) S.Su. Riddle
688. Readings in Philosophy. (1-4:1-4:0) F.S.Su. Staff

Human Development and Family Relationships

Professors: Porter (chairman, 1239 SFLC), Cannon, Moss.

Assistant Professor: Holbrook.

Fields

Child development, family life education, marriage and family counseling.

Requirements

The Department of Human Development and Family Relationships offers training leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. A student must have adequate preparation on the undergraduate level before beginning work leading to one of these degrees. The admissions committee of the graduate faculty of the Department of Human Development and Family Relationships determines whether the student is properly prepared.

Master's Degree

(For general requirements see Graduate School regulations.)

Requirements for a master's degree in human development and family relationships include a general examination at the beginning of the graduate program to establish the student's mastery of basic undergraduate courses in H.D. F.R. Normally the student meets the major and minor requirements as described under option one in the Graduate School regulations. However, the student's advisory committee may plan the program according to option two. Additional requirements include a thesis prepared under the direction of the student's advisory committee in which he interprets and reports the results of his research work; the satisfactory performance in the final oral examination which will evaluate the student's competence in his major and minor fields and his ability to defend his thesis.

Doctor of Philosophy Degree

(For general requirements see Graduate School regulations.)

Requirements for a Doctor of Philosophy degree in human development and family relationships include an advisory evaluation examination to be administered after the completion of one year of graduate work, to be used in determining the student's qualifications to continue graduate studies and to help plan his program; a minimum of two graduate courses in each of the following areas:

child development, family relationships, research methodology and statistics, and counseling theory and practice; (If a student is sufficiently qualified, a year at the Merrill-Palmer Institute of Human Development and Family Life, Detroit, Michigan, may be included in his program); comprehensive examination, both written and oral covering the general areas of human development and family relationships and the chosen minor fields; work in the major field plus one or two minors in related areas as determined by the student and his advisory committee; a dissertation embodying the results of original research; and an oral presentation and defense of his dissertation before a formally appointed committee.

Graduate Courses

- 510, 511. Advanced Child Development.** (3:3:0 ea.) F.S. Prerequisite: H.D.F.R. 210. Porter
Intensive study of principles of child development and behavior as they relate to home situations, nursery schools, day-care centers, and other children's programs. Observation of individuals from infancy through adolescence.
- 520. Workshop in Child Development.** (2:2:0) Su. only. Prerequisite: 8 hours H.D.F.R. or permission of department chairman. Staff
Intensive study of application of principles of child development and child guidance.
- 570. Community and Professional Responsibilities to Children and Families.** (3:3:0) S. Prerequisites: H.D.F.R. 210, 361; Sociology 111. Porter
Acquaintance with resources of the community as they relate to the welfare of children and families. A consideration of the responsibilities of professional persons working with children and families.
- 575. Parent Education.** (2:2:0) S. Prerequisite: consent of instructor. Staff
Basic principles in organization of parent study programs. Formulation and presentation of programs for parents.
- 580. Introduction to Marriage and Family Counseling.** (2:2:0) S. Prerequisite: consent of instructor. Holbrook
Theories and techniques used in marriage and family counseling. Consideration of individual and group counseling as it pertains to the family.
- 590. Readings in Human Development and Family Relationships.** (1-2:1-2:0) F. S.Su. Prerequisite: consent of instructor. Cannon, Moss, Porter
Discussions and reports of current readings in this field. Open to students who have completed fifteen hours of human development and family relationships.
- 595. Special Topics in Human Development and Family Relationships.** (1-2:1-2:0) F.S.Su. Cannon, Moss, Porter
Individual study for qualified students majoring in human development and family relationships upon consultation with the instructor and the chairman of the department.
- 596. Research Problems and Methods in Human Development and Family Relationships.** (2:2:0) S. Cannon
Analysis of research methods used in human development and family relationships. Students have active experience in formulating a research project.
- 611. Current Concepts in Research in Child Development.** (2:2:0) F. Porter
- 661. Dynamics of Family Interaction.** (2:2:0) S. Prerequisite: H.D.F.R. 360. Porter
- 663. Critical Problems in Family Life.** (2:2:0) F. Prerequisite: H.D.F.R. 361. Cannon
- 664. Current Concepts and Research in Family Relationships.** (2:2:0) F. Staff
- 666. Family Problems of High School Students.** (2:2:0) Su. Staff

667. **Problems of Teaching Marriage and Family Relationships in College.** (2:2:0) S. Cannon
685. **Developmental Use of Play Experiences.** (2:2:0) S. Prerequisite: consent of instructor. Staff
- 692, 693. **Seminar.** (2:2:0 ea.) F.S. Cannon, Moss, Porter
697. **Independent Research.** (1-3:1-3:0) F.S. Cannon, Moss, Porter
699. **Thesis for Master's Degree.** (1-6:1-4:0) Cannon, Moss, Porter
780. **Marriage and Family Counseling.** (2:2:0) F. Prerequisite: H.D.F.R. 580; E.R.S. 625; consent of instructor. Staff
781. **Case Analysis in Marriage Counseling.** (2:2:0) S. Prerequisite: H.D.F.R. 780. Staff
- 785, 786. **Internship in Marriage Counseling.** (3:1:6 ea.) F.S. Prerequisites: H.D.F.R. 780 and 781. Staff
792. **Seminar in Marriage Counseling.** (2:2:0) S. Staff
794. **Special Topics in Human Development.** (1-2:1-2:0) F.S.Su. Cannon, Moss, Porter
795. **Special Topics in Family Relationships.** (1-2:1-2:0) Cannon, Moss, Porter
797. **Doctoral Candidate Research.** (2-4:2-4:0) F.S.Su. Cannon, Moss, Porter
799. **Dissertation for the Ph.D. Degree.** (Arr.) F.S.Su. Cannon, Moss, Porter

Industrial Education

Professor: Jeppsen.

Associate Professor: McArthur (chairman, 221 SIE).

Requirements

The basic requirements for the master's degree in industrial education, both for the plan "A" and the plan "B" type programs, are those specified by the Graduate School. In addition the department requires:

- (a) Satisfactory completion of 12 semester hours of industrial and technical undergraduate courses prior to or concurrent with the graduate work.
- (b) Satisfactory completion of a qualifying examination given by the Industrial Education Department.
- (c) Under the plan "B" program, satisfactory completion of three or more years of successful teaching experience before graduation with the master's degree.

Through consultation with his adviser, a program of study is set up from courses in the major and related fields which shall include from 18 to 22 semester hours in the major area and from 10 to 14 semester hours in the minor area.

Graduate Courses

510. **History and Trends in Industrial and Technical Education.** (2:2:0) F.Su. McArthur
- Historical developments of industrial and technical education programs from their early beginnings to the present time.

- 515. Principles and Objectives of Industrial and Technical Education.** (2:2:0) F. Su. McArthur
General philosophy, principles, and objectives of industrial arts, vocational education, and technical education programs.
- 520. Analysis in Industrial and Technical Education.** (2:2:0) F.Su. Prerequisite: I.E. 515 or approval of instructor. Jeppsen
Basic principles involved in analyzing industrial and technical occupations for determining functional teaching content.
- 525. Course Construction in Industrial and Technical Education.** (2:2:0) S.Su. Prerequisite: I.E. 520 or approval of instructor. Jeppsen
Preparation and use of a course of study in industrial and technical fields based upon an analysis of the occupation.
- 540. Industrial Occupational Information and Guidance.** (2:2:0) S.Su. McArthur
Designed to provide teachers and administrators of industrial and technical education programs with information and processes needed in advising students in the industrial and technical fields of employment.
- 594, 595. Problems in Industrial and Technical Education.** (1-3:1-3:3-6 ea.) F.S. Su. Staff
Designed to strengthen the student in a given area of instruction provided in the industrial education program.
- 690, 691. Seminar in Industrial and Technical Education.** (1:1:0 ea.) Su. Staff
Latest developments and research findings in the field of industrial and technical education are reviewed.
- 693, 694. Reading and Conference.** (1-3:1-3:0 ea.) F.S.Su. McArthur
- 699. Thesis for Master's Degree.** (Arr.) F.S.Su. McArthur

These courses also count in industrial education:

- E.R.S. 540. Statistical Methods.** (2:2:0)
- E.R.S. 410. Tests and Measurements for Classroom Teachers.** (2:2:0)
or
- E.R.S. 610. Educational Tests and Measurements.** (2:2:0)
- E.R.S. 641. Educational Research and Thesis Writing.** (2:2:0)

Institute of Government Service

Professor: Grow (director, 356 McK).

The Institute of Government Service offers graduate studies leading to the Master's Degree in the fields of Public Administration and International Affairs. The aim of the program is to provide training for those students who wish to prepare for service in local, state, federal, or international governmental activities, international trade, or who plan further advanced graduate work in public administration for the purpose of teaching.

Administration of the Program

The program is administered by the director of the Institute of Government Service. Program policy is formulated by the director and an advisory committee composed of the chairman or representative of the departments of Political Science, History, Language, Sociology, Psychology, Economics, Geography, and English. Changes in the program shall be on approval of the Graduate Council.

Entrance Requirements

To be admitted, an applicant must possess the bachelor's degree from an accredited university and meet the requirements of Brigham Young University for

admission to graduate study. Students may be admitted from a variety of backgrounds. Those who have majored or minored in political science, economics, history, psychology, business, geography, languages, or engineering will generally possess good training. When application for admission is made, each applicant will be advised of any background shortages which will need to be overcome.

Each student admitted will either be personally interviewed or his credits given close scrutiny to assess his educational background, his work experience, and his future goals. A program will then be outlined which will remedy any background shortages and provide advanced training leading to the master's degree. Entering students will be required to have adequate preparation in such fields as national history, national government, or basic economics. If the student lacks such background, he will be required to take lower division background courses which will not be counted toward the master's degree. Students entering with a background of education in the United States will be required to have or to take the equivalent of History 120 and 121, Political Science 110, and Economics 101. Foreign students will be required to have equivalent history and political science courses relating to their own countries and similar training in economics.

Requirements for the Degree

The master's degree requires the completion of 30 or more semester hours of acceptable graduate credit under the direction of an advisory committee which will normally be composed of faculty from two or more departments. A thesis is required which may carry up to six hours credit which will be counted in the total hour requirement. The student will be required to comply with all graduate requirements set forth in the graduate catalog with the exception that in place of the traditional major and minor, credit may be distributed in accordance with the plans outlined below.

PROGRAM A. State and Local Governments. Students specializing in this area will be required to have background indicated plus Political Science 111 or its equivalent and to take 30 or more hours selected in conjunction with the director of the Institute of Government Service or the student's advisory committee from the following courses or their equivalents:

- Political Science 310. Political Parties, Pressure Groups, and Public Opinion in the U.S. (3 hours)
- Political Science 320. American Legislative System (2 hours)
- *Political Science 330. Introduction to Public Administration (3 hours)
- Political Science 501. City Planning (3 hours)
- Political Science 502. Public Works and Safety Administration (3 hours)
- Political Science 504. Budget and Fiscal Administration (3 hours)
- Political Science 532. Personnel Administration (2 hours)
- *Political Science 535. Municipal Government and Administration (3 hours)
- Geography 522. Urban Geography (3 hours)
- Bacteriology 311. Sanitation and Public Health (or 321)
- Economics 461. Labor Problems and Labor Relations
- Economics 575. Government Finance (3 hours)
- Sociology 316. Social Control
- Sociology 380. Criminology
- Sociology 426. Sociology of Urban Life
- Sociology 449. Community Organization, Action, and Planning (3 hours)
- Statistics 221. Principles of Statistics (3 hours)
- Sociology 320. Social Statistics
- Journalism 561. Public Relations (3 hours)
- Psychology 336. Personnel Psychology—Theory and Practice
- *Psychology 357. Group Relations and Leadership
- Psychology 370. Elementary Statistics

PROGRAM B: National Government. Students specializing in this area will be required to take 30 or more hours selected in conjunction with the director of the Institute of Government Service and the student's advisory committee from the following courses or their equivalents:

- Political Science 306. American Political Thought (2 hours)
- Political Science 310. Political Parties, Pressure Groups, and Public Opinion in the United States
- Political Science 320. American Legislative System
- *Political Science 330. Introduction to Public Administration (3 hours)
- Political Science 350. Government of the Soviet Union and Eastern Europe (3 hours)
- Political Science 355. Government and Politics of United Kingdom and the Commonwealth (3 hours)
- Political Science 396. Constitutional Law
- Political Science 397. Constitutional Law
- Political Science 504. Budget and Fiscal Administration (3 hours)
- Political Science 532. Personnel Administration (2 hours)
- Political Science 593. Administrative Law of the U.S. (3 hours)
- Economics 345. Intermediate Economic Analyses
- Economics 430
- Economics 575. Government Finance (3 hours)
- Economics 576. Government and Business (3 hours)
- English 361. Early American Literature (3 hours)
- English 362.
- Geography 441. Political Geography (3 hours)
- History 379. U.S. in 20th Century
- History 679. Contemporary United States (2 hours)
- Journalism 561. Public Relations (3 hours)
- Psychology 336. Personnel Psychology: Theory and Practice (3 hours)
- Sociology 420. Population Problems (3 hours)
- Sociology 426. Urban Sociology
- *Sociology 357. Group Relations and Principles of Leadership

PROGRAM C: International Affairs. Students specializing in this area will be required to have background indicated above plus Political Science 112 or 115 or their equivalent and take 30 or more hours selected in conjunction with the director of the Institute of Government Service and the student's advisory committee from the following courses or their equivalent:

- Political Science 303. Modern Western Political Thought (3 hours)
- Political Science 306. American Political Thought (2 hours)
- *Political Science 330. Introduction to Public Administration (3 hours)
- Political Science 350. Government of the Soviet Union and Eastern Europe (3 hours)
- Political Science 352. Government and Politics of East Asia (2 hours)
- Political Science 355. Government and Politics of United Kingdom and the Commonwealth (3 hours)
- Political Science 560. Governments of Latin-America (2 hours)
- Political Science 565. International Organization (3 hours)
- Political Science 571. Development of American Foreign Policy (3 hours)
- Political Science 572. Soviet Foreign Policy (2 hours)
- Political Science 575. International Law (5 hours)
- *Sociology 357. Group Relations and Principles of Leadership
- Sociology 420. Population Problems.
- Economics 274. Economics and Financial History of the U.S. (3 hours)
- Economics 345. Intermediate Economics
- Economics 358. International Trade and Finance (3 hours)
- Economics 383. Comparative Economic Systems (3 hours)
- Economics 575. Government Finance (3 hours)
- Economics 580. History of Economic Thought (3 hours)

- English 355. World Classics (3 hours)
 English 356. World Classics (3 hours)
 English 357. World Classics (3 hours)
 English 358. World Classics (3 hours)
 English 550. The Criticism and Appreciation of Literature (3 hours)
 English 582. Shakespeare (3 hours)
 Geography 441. Political Geography (3 hours)
 Geography 455. Latin America (3 hours)
 Geography 552. United States (2 hours)
 Geography 561. Western Europe and the Mediterranean (2 hours)
 Geography 562. U.S.S.R. and Its Satellites (2 hours)
 Geography 571. Orient (2 hours)
 *History 323. Europe in the Twentieth Century (2 hours)
 History 330. Russia Before 1900 (2 hours)
 History 331. Russia since 1931 (2 hours)
 History 335. England (3 hours)
 *History 340. Asia (3 hours)
 History 348. Cultural Asia (2 hours)
 History 352. Latin America (3 hours)
 History 379. U.S. in the 20th Century
 History 525. European Diplomatic History since 1815
 History 548. Cultural Asia (2 hours)
 *History 679. Contemporary United States History (2 hours)
 *Languages. Advanced preparation will develop the foreign language to a level approximating the Foreign Service Requirement.
 Anthropology 241. Growth of Culture in the Old World
 Anthropology 246. Growth of Culture in the New World
 Anthropology 552. Personality, Culture and Society

*Required courses.

Journalism

Professor: Smith.

Assistant Professors: Paulson (chairman, 160 SSC), Butterworth, Burnett.

Requirements

The Department of Journalism offers work leading to the Master of Arts degree and Master of Science degree, with programs of individual students arranged to provide concentrations in areas of special interest. Special emphasis is given to programs in research, advertising-public relations, and teaching journalism in the secondary school and junior college.

Prospective majors are advised to consult the chairman of the department concerning background for graduate study in this field. Competence demonstrated in a qualifying examination or appropriate undergraduate courses may be required of students deficient in academic preparation or practical experience.

Students desiring to complete a graduate minor in journalism should consult the chairman of the department regarding a recommended program of study.

Graduate Courses

- 561. Public Relations.** (3:3:0) F.Su. Butterworth, Smith
 Philosophy and practice of public relations in business, governmental, educational and other institutions; study of publics, media, and methods. Case studies of public relations practice.
- 563. Projects in Public Relations.** (1:0:3) F.S.Su. Butterworth
 Field projects in public relations practice for selected business, industrial, or non-profit institutions. (Limited to majors and minors.)

- 566. Industrial Magazine Editing and Production.** (2:2:0) S. Prerequisites: Journalism 211, 301. Burnett
Principles of layout and design for house magazines and business publications. Contemporary problems in content and production.
- 574. Teaching Methods in Journalism.** (2:2:0) Su. Prerequisite: Journalism 321 or equivalent. Staff
Teaching methods for journalism in the secondary school and junior college. Planning and supervising school newspapers. Disseminating school publicity in the public media.
- 576. School Yearbook and Magazine Production.** (2:2:0) (Offered 1963-64 and alternate years) also Su. Staff
Planning and supervising production of school yearbooks and magazines, including copy, illustration, layout, printing, binding, and business management.
- 671. Research Methods in Mass Communications.** (2:2:0) F. Smith
Research techniques in communication fields, including readership, readability, content analysis, and audience measurement. Introduction to thesis writing.
- 672. Mass Communication and Society.** (3:3:0) S. Paulson, Smith
Concepts of mass communication in contemporary society; critical evaluation of responsibilities and performance of the mass media of press, radio, television, and film.
- 680. World Communication Channels.** (2:2:0) F. Burnett, Smith
Study of communication media in principal areas of the world. Problems of international communications and barriers to the flow of information between peoples.
- 690. Seminar in Mass Communications.** (1:1:0) S.Su. Staff
- 691, 692. Special Studies in Communication.** (1-3:Arr.:Arr.) F.S.Su. Staff
Individual work on approved problems not leading to a thesis. (Projects must be approved before registration.)
- 694. Readings in Mass Communication.** (1-2:Arr.:Arr.) F.S.Su. Prerequisite: consent of instructor. Staff
- 699. Thesis for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su. Staff

This course also counts in journalism:

Business Management 555. Problems in Advertising. (3:3:0)

Languages

Professors: Cummings (emeritus), deJong, Lee, Nibley, Rogers, Taylor (chairman, 326 McK), Watkins, Wilkins.

Associate Professors: V. A. Anderson, Clark, Hansen, Valentine.

Assistant Professors: Brown, Folsom, Gibson, Seely.

Fields

French, German, Latin, Portuguese, Spanish

Requirements

For full graduate standing in French, German, and Spanish, students must have completed courses 101, 102, 201, 301, 321, 322, 441, and 442 in the language chosen as a major, or have an equivalent background. No provisional admission may be granted on a lesser background. Minors in these fields must have completed courses 101, 102, 201 and 301 or have a fluent reading knowledge of the

language elected. For information concerning Latin and Portuguese, consult the chairman of the department.

The major is in the language and literature of any one of the following languages: French, German, Spanish, Portuguese and Latin. The minor may be in a second language or in another department, subject to the approval of the advisory committee.

FRENCH

Graduate Courses

520. **French Composition and Grammar.** (2:2:1) F.S.Su. Staff
521. **Introduction to Romance Philology.** (2:2:0) F. (Offered 1962-63 and alternate years) Clark
522. **History of French Language.** (2:2:0) S. (Offered 1962-63 and alternate years) Clark, Lee
543. **Introduction to French Civilization.** (2:2:0) F.S.Su. Brown, Clark, Heudier, Lee
660. **Old French Literature.** (2:2:0) S. (Offered 1963-64 and alternate years) Clark, Lee
665. **French Literature of the Renaissance.** (2:2:0) F. (Offered 1963-64 and alternate years) Brown, Clark, Lee
670. **French Literature of the 17th Century.** (2:2:0) S. (Offered 1962-63 and alternate years) Brown
674. **Moliere.** (2:2:0) S. (Offered 1963-64 and alternate years) Brown, Clark, Lee
675. **French Literature of the 18th Century.** (2:2:0) F. (Offered 1963-64 and alternate years) Clark, Seely
680. **French Drama of the 19th Century.** (2:2:0) F. (Offered 1963-64 and alternate years) Lee, Smithson
681. **French Novel of the 19th Century.** (3:3:0) S. (Offered 1963-64 and alternate years) Brown, Lee, Smithson
685. **French Literature of the 20th Century.** (2:2:0) F. (Offered 1962-63 and alternate years) Lee, Seely
686. **Modern French Drama.** (2:2:0) S. (Offered 1962-63 and alternate years) Lee, Seely
687. **Modern French Novel I.** (2:2:0) F. (Offered 1962-63 and alternate years) Brown, Lee, Seely
- 690, 691. **Directed Readings in French.** (1-2:1-3:0) F.S.Su. Staff
- 692, 693. **Seminar in Philology.** (1-2:1-3:0) F.S.Su. Staff
- 694-698. **Seminar in French Literature.** (1-2:1-3:0) F.S.Su. Staff
699. **Thesis for Master's Degree.** (Arr.) F.S.Su. Staff

GERMAN

Graduate Courses

520. **Advanced German Composition and Grammar.** (2:2:0) S.Su. Anderson, Rogers
522. **History of the German Language.** (2:2:0) S. Prerequisite: Three years of college German or its equivalent. Folsom, Watkins

600. **Cultural History of Germany.** (2:2:0) S.Su. Watkins
622. **Gothic and Old High German.** (5:5:0) F. Watkins
Introduction to comparative Germanic philology through a study of linguistic forms in old Germanic languages, principally Gothic and Old High German.
624. **Middle High German.** (3:3:0) S. Watkins
643. **German Lyric Poetry.** (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson, Rogers
644. **The Modern German Drama.** (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson
645. **The Modern German Novel.** (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson
646. **The German Short Story.** (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson
676. **Lessing.** (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
677. **Schiller.** (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
678. **Goethe.** (2:2:0) F. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Rogers
685. **Contemporary German Literature.** (2:2:0) S. Prerequisites: German 431, 432, 441, 442, or consent of instructor. Anderson, Rogers
- 690, 691. **Directed Readings.** (2:0:Arr.) F.S.Su. Anderson, Rogers, Watkins
- 692, 693. **Seminar in Philology.** (2:2:0) S.Su. Watkins
- 694-698. **Seminar in Literature.** (2:2:0) F.S.Su. Staff
699. **Thesis for Master's Degree.** (Arr.) Staff

LATIN

Graduate Courses

520. **Advanced Composition and Grammar.** (2:2:0) S. Prerequisites: Latin 322 or equivalent. Clark, Staff
- 561, 562. **Readings in Medieval Latin.** (2:2:0) F.S. Prerequisites: Latin 301 or 112 or equivalent. Clark, Staff
661. **Cicero.** (3:3:0) F. Clark
671. **Virgil.** (3:3:0) S. Clark, Staff
675. **The Latin Poets: Horace, Ovid, Lucretius, etc.** (3:3:0) F. Clark, Staff
679. **The Latin Dramatists: Plautus, Terence, etc.** (3:3:0) S. Clark, Staff
- 681, 682. **The Latin Fathers.** (3:3:0) F.S. Prerequisite: consent of instructor. Nibley
- 690, 691. **Directed Readings.** (1-2:Arr.:Arr.) F.S.Su. Clark, Staff
Individual study on a graduate level.
- 692, 693. **Seminar in Philology.** (2:2:0) F.S. Clark, Staff
- 694-698. **Seminar in Literature.** (2:2:0) F.S. Clark, Staff
699. **Thesis for Master's Degree.** (Arr.) F.S.Su. Staff

PORTUGUESE**Graduate Courses**

620, 621. Portuguese Composition and Conversation. (3:3:0) F.S.	deJong
641. Introduction to Portuguese Literature. (3:3:0) F.S. (G-HA)	de Jong
642. Contemporary Portuguese Literature. (3:3:0) S.	de Jong
650. Introduction to Brazilian Literature. (3:3:0) F.S.	de Jong
651. Contemporary Brazilian Literature. (3:3:0) S.	de Jong
690. Directed Readings. (1-2:0:Arr.) F.S.Su.	Staff
692. Seminar in Philology. (2:2:0) F.S.	de Jong
694. Seminar in Literature. (1-2:1-2:0) F.S.	Staff
699. Thesis for Master's Degree. (1-4:1-4:0) F.S.	Staff

SPANISH**Graduate Courses**

521. Introduction to Romance Philology. (2:2:0) F.	Clark
522. History of the Spanish Language. (2:2:0) S.	Gibson
552. Spanish American Short Story. (2:2:0) F.S.	Valentine, Wilkins
556. Spanish American Poetry. (2:2:0) F.S.	Valentine, Wilkins
580. 19th Century Drama and Poetry. (3:3:0) F.S.	Gibson, Taylor
581. 19th Century Novel. (3:3:0) F.S.	Gibson, Hansen, Taylor
653. Spanish American Drama. (2:2:0) F.S.	Wilkins
654. Mexican Novel. (2:2:0) F.S.	Hansen, Valentine, Wilkins
655. South American Novel. (2:2:0) F.S.	Hansen, Valentine, Wilkins
656. The Modernista Movement. (2:2:0) S.	Valentine, Wilkins
657. Hispanic American Essay. (2:2:0) F.	Valentine, Wilkins
660. Spanish Medieval Literature. (2:2:0) S.	Taylor
670, 671. Golden Age Literature. (3:3:0) F.S.	Gibson, Taylor
685, 686. 20th Century Literature. (2:2:0) F.S.	Taylor
690, 691. Directed Readings. (2:0:Arr.) F.S. Individual study on a graduate level.	Staff
692. Seminar in Philology. (2:2:0) F.S.Su.	Staff
694-698. Seminar in Literature. (2:2:0) F.S.Su.	Staff
699. Thesis for Master's Degree. (Arr.) F.S.Su.	Staff

Library Science

Assistant Professors: Knight (chairman, 532 Library), Nelson.

The library science program of graduate classes is organized to provide opportunity for those students who already have the necessary undergraduate work in library science, but who wish to become more proficient in their work. It will

fill the needs of those who wish to renew certificates and enable them to achieve the standards set by accreditation agencies.

No provision is made for awarding a master's degree in library science under the present program, but a minor may be taken in this field.

Graduate Courses

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|---|--------|
| 569. Reading Guidance for Young People. (2:2:0) F.Su. | Staff |
| A critical study of the reading interests and needs of young people. Problems of the reluctant and the avid reader. Extensive examination and reading of books. | |
| 571. Bibliography of the Sciences. (2:2:0) Su. | Staff |
| 572. Bibliography of the Humanities. (2:2:0) S. | Knight |
| 573. Bibliography of the Social Sciences. (2:2:0) S. | Knight |
| 585. History of Books and Libraries. (2:2:0) F.Su. | Staff |
| 650. Current Problems in the Technical Services. (2:2:0) Su. | Staff |
| 695, 696. Readings and Research in Library Science. (1-2:Arr.:Arr.) F.S.Su. | Staff |

These courses also count in library science:

- Instruction 605. Development of Instructional Materials. (2:2:1)
 Speech 527. Storytelling. (2:2:0)

Mathematics

Professors: Gardner, Fletcher.

Associate Professor: Robinson (chairman, 460-1 ESC).

Assistant Professors: Fearnley, McDonald.

The Department of Mathematics offers courses leading to the master's degree in mathematics for students who are (1) preparing for teaching careers in high school and junior college; (2) preparing for work in industry or government; or (3) preparing to do additional study and research in mathematics at the Ph.D. level.

Requirements

Graduate students should acquaint themselves with the general Graduate School regulations.

A student is required to present credit in a minimum of 16 semester hours of approved upper division or advanced undergraduate courses in mathematics, and including 6 hours of advanced calculus, before being admitted on a degree-seeking basis. A student whose future plans include work in industry should have had a course in Numerical Analysis. Those who plan to pursue Ph.D. work in mathematics should have topology and linear or abstract algebra. A student planning to teach or work in a field related to mathematics would profit by taking a course in statistics.

A candidate for the master's degree in mathematics must complete a minimum of three (full year) courses in graduate mathematics, plus an acceptable thesis. A prospective major should obtain departmental approval on his program before registration.

Graduate Courses

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|---|-------|
| 541, 542. Advanced Calculus. (3:3:0 ea.) F.S. Prerequisite: Math 334. | Staff |
| 551, 552. Topology. (3:3:0 ea.) F.S. Prerequisite: credit of concurrent registration in Math 541. | Staff |

- 617, 618. Mathematical Physics.** (3:3:0 ea.) F.S. Prerequisite: Math 336; recommended: Math 542. Staff
- 631, 632. Complex Analysis.** (3:3:0 ea.) Prerequisite: Math 334; recommended: Math 542. Staff
- 641, 642. Functions of a Real Variable.** (3:3:0 ea.) F.S. Prerequisite: Math 213; recommended: Math 542. Staff
- 647, 648. Partial Differential Equations.** (3:3:0 ea.) F.S. Prerequisite: Math 334; recommended: Math 542. Staff
- 671, 672. Modern Algebra.** (3:3:0 ea.) F.S. Prerequisite: Math 371. Staff
- 695. Readings in Mathematics.** (1-2:1-2:0) F.S. Staff
- 699. Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S. Staff

These courses also count in mathematics:

Statistics 521, 522. Theory of Statistics. (3:3:0)

Statistics 541. Advanced Probability. (3:3:0)

Mechanical Engineering Science

Professors: Baxter, Simonsen.

Associate Professors: Cannon (chairman, 274 ELB), Ulrich.

Assistant Professor: Wille.

The areas of graduate study in mechanical engineering are: Thermodynamics, heat transfer, gas dynamics, and machine design.

Requirements for Entrance

A student working toward a graduate degree in mechanical engineering science should have completed a bachelor's degree (or its equivalent) in mechanical engineering. A student without adequate background will be required to make up the deficiency. A course in differential equations is the minimum mathematics background acceptable.

Graduate Courses

- 521. Advanced Thermodynamics.** (3:3:0) Arr. Prerequisites: M.E. 422, Math 336. Staff
Extended treatment of the fundamentals of thermodynamics including transient conditions, equilibrium, current topics.
- 531. Principles of Automatic Control.** (3:3:0) Arr. Prerequisites: E.E. 302, Math 334, M.E. 412. Staff
Transfer functions applied to mechanical, hydraulic, pneumatic, and electrical components, and their combination. Block diagrams, Nyquist and Routh Criteria, Bode's and Root Locus Plots, Integral and error rate compensation. Non-linear systems.
- 532. Special Topics in Machine Design.** (3:3:0) Arr. Prerequisite: M.E. 433. Staff
Selected topics in the behavior of engineering materials and advanced mechanics of materials as applied to the design of machine members.
- 533. Stress Analysis in Machine Components.** (3:3:0) Arr. Prerequisites: C.E. 303, Math 336. Staff
Statically indeterminate structures, columns, tension and shear fields,

shell analysis, curved beams and rings, buckling of columns and compression panels, torsion analysis of irregular shapes, and combined loads and stresses. Particular emphasis is given to machine components and flight vehicle structures.

- 535. Mechanical Vibrations.** (3:3:0) F. Prerequisites: C.E. 302, Math 336. Staff
Fundamentals of simple vibrating systems with applications.
- 541. Advanced Heat Transmission.** (3:3:0) Arr. Prerequisite: M.E. 441. Staff
Extension of M.E. 441 to include numerical and approximate methods of solution, transient problems, and solution of problems by analogy methods. Thermodynamics cycles, systems, and processes involved in cooling.
- 581. Internal Combustion Engines.** (3:2:3) Arr. Prerequisite: M.E. 422. Staff
Basic principles; theoretical and actual cycles; performance characteristics with experimental laboratory analysis.
- 583. Principles of Turbomachinery.** (2:2:0) Arr. Prerequisites: M.E. 331, 412. Staff
Analysis and design of all types of turbomachinery.
- 585. Jet Propulsion Power Plants.** (3:3:0) Arr. Prerequisites: M.E. 413, 422. Staff
Analysis of jet propulsion power plants including performance, economics, and matching components.
- 595, 596. Special Problems.** (Arr.) Arr. Prerequisite: consent of department chairman. Staff
- 611. Fluid Dynamics.** (3:3:0) Arr. Prerequisites: Mathematics 317, M.E. 412. Staff
- 612. Gas Dynamics.** (3:Arr.:Arr.) Arr. Staff
- 621, 622. Thermodynamics Theory I, II.** (3:Arr.:Arr. ea.) Arr. Prerequisite: M.E. 521. Staff
Brief review of zeroth, first and second laws of thermodynamics. Criteria for equilibrium, meta stable equilibrium, additional unsteady state problems, third law, statistical approach, irreversible thermodynamics, current topics from literature.
- 635. Advanced Vibration Analysis.** (3:3:0) Arr. Prerequisite: M.E. 535. Staff
Vibration characteristics of systems with multiple degrees of freedom; vibrational modes of elastic bodies; random vibrations; simple non-linear systems.
- 636. Advanced Vibrations II.** (3:Arr.:Arr.) Prerequisite: M.E. 535. Staff
Advanced linear vibration theory with special emphasis on approximate methods of analysis of complex systems and topics in non-linear vibration theory. Includes application of advanced theory to problems of current interest.
- 641, 642. Heat Transfer Theory I, II.** (3:Arr.:Arr. ea.) Arr. Staff
- 661, 662. Elasticity in Engineering.** (3:Arr.:Arr. ea.) Arr. Staff
Fundamental concepts of elasticity theory. Equations of stress equilibrium and strain compatibility. Solution of two-dimensional problems. Photoelastic method of stress measurements. Analysis of stress and strain in three dimensions. Solution of torsion problems. Wave propagation in elastic solids. Particular emphasis is placed upon application to machine design such as stress in bearings, contact stress in machine elements, pressure vessels and thermal stresses. Approximations to the exact theory for specific applications are discussed in detail.
- 697. Research for Master's Degree.** (Arr.) Arr. Staff
- 699. Thesis for Master's Degree.** (1-6:Arr.:Arr.) Arr. Staff

Music

Professors: de Jong, Earl, Gates (chairman, 260 C), Halliday, Sardoni.

Associate Professors: Goodman, H. Laycock, Weight.

Assistant Professors: Cannon, Cundick, Nordgren.

The Department of Music offers graduate programs leading to the master's degree and the Ph.D.

Prospective graduate students are expected to acquaint themselves with all general regulations for advanced degrees as outlined by the Graduate School. Departmental recommendation for full graduate standing is granted to students who possess the baccalaureate degree with a major in music, have at least a "B" average in the last two years of college work, and pass the department graduate entrance examination. This examination presupposes the equivalent of Music 292 and Music 484, 485. Provisional standing may be recommended for a student who has not completed the above general requirements or the specific requirements listed below. Deficiencies in background must be made up, however, before full standing will be recommended.

Candidates for an advanced degree in music education (elementary or secondary) must have completed the general certification requirements or equivalent. Students wishing to take an advanced degree with a major in music theory should possess a baccalaureate degree with a major in music theory or its equivalent. Candidates for an advanced degree in musicology should possess a baccalaureate degree with a major in music theory or its equivalent and should possess a reading knowledge of at least one foreign language, preferably French or German.

Master's Degree

The basic requirements for the master's degree in music are the same as the general Graduate School requirements. Both Option I and Option II are available. Approved fields for study are Music Education, Music Theory, Musicology, and Applied Music (available as a minor field only). Special departmental requirements for the master's degree are as follows:

Music Education: Music 605, 610 or 612, 613, 635, and 693.

Music Theory: Music 613, 635, 686, and 693.

Musicology: Music 613, 635, 637, 638, 639, 675, and 693.

Doctor's Degree

The doctoral program in music is flexible and is designed to meet each candidate's needs. It offers optional emphasis in the areas of Music Education, Music Theory, and Musicology. The Ph.D. curriculum in music includes a total of 80-82 hours of approved course work and research beyond the baccalaureate degree as follows:

1. A core program of 34 semester hours of advanced study in music which provides the framework and basic techniques for systematic learning and research in any area of music. This core consists of the following courses: Music 613, 635, 637, 638, 639, 652, 675, 754, 785, 791, and Psychology 606.
2. A major area of emphasis (music education, music theory, or musicology) of 36 hours to be prescribed by the advisory committee, but which will include Music 693, 699, 794 (6 hours), and the writing of an acceptable dissertation based on original research (Music 799, 12 hours credit). Music 686 is also required for students whose emphasis is in music theory.
3. A minor of 10 to 12 semester hours outside the field of music.

A student desiring to pursue the Ph.D. program must pass the department doctoral admissions examination during the first semester of work following the

master's degree or by the time he has accumulated approximately forty-five semester hours beyond the baccalaureate degree.

Graduate Courses

- 537x. Music for Elementary School Teachers (Advanced).** (2:2:0) Home Study only. Prerequisites: Music 102, 237. Groesbeck
Experiences in teaching and various music activities in the elementary school.
- 565. Piano Pedagogy.** (2:2:0) S. Prerequisite: Advanced standing as a pianist. Keeler
Methods, materials, and problems in teaching piano.
- 566, 567. Vocal Repertoire.** (1:0:2 ea.) F.S.Su. Prerequisite: Advanced ability as a singer. Weinzinger
- 568. Vocal Pedagogy.** (2:2:0) S.Su. Prerequisite: Advanced ability as a singer. Weinzinger
- 569. Organ Pedagogy.** (2:2:0) S. Prerequisites: Music 468. Keeler
- 571, 572. Counterpoint.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 292. Cundick
- 581, 582. Orchestration.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 292. Cundick, Gates
- 587, 588. Composition.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 292. Cundick, Gates
- 601. Music in the Elementary School.** (2:2:0) F.Su. Prerequisites: Music 237 and the equivalent of an elementary education teaching minor in music. Groesbeck
- 603. Music in the Junior High School.** (2:2:0) S.Su. Prerequisite: Music 601. Goodman
- 605. Influence of Music on Behavior.** (3:3:0) F.Su. Prerequisite: general psychology, sociology, or equivalent. Goodman
- 610. Supervision and Administration of Music in the Public Schools.** (2:2:0) S. Su. Goodman
- 612. Music Education in Society.** (3:3:0) S. Prerequisites: Music 484, 485 or equivalent. Goodman
- 613. Basic Concepts in Music Education.** (2:2:0) F.Su. Goodman
- 615. Vocal Methods, Materials, and Resources.** (2:2:0) F.Su. Prerequisite: Music 479 or equivalent. Halliday
- 616. Instrumental Methods, Materials, and Resources.** (2:2:0) S.Su. Prerequisite: Music 479 or equivalent. H. Laycock
- 620. Advanced Conducting.** (2:2:0) F.Su. Prerequisites: Music 374, 375 or equivalent. Sardoni
- 625. Summer Music Clinic.** (2:4:4) (Two weeks during clinic) Su. Staff
May be counted as either music education or applied music.
- 635. Musical Research Techniques.** (3:3:0) F.Su. Prerequisite: graduate standing or consent of instructor. Cannon, Earl
Required of all candidates for graduate music degrees.
- 637. Medieval and Renaissance Music.** (4:4:0) F.Su. Prerequisites: Music 484, 485, or equivalent. Cannon
- 638. Music of the Baroque Period.** (3:3:0) S.Su. Prerequisites: Music 484, 485, or equivalent. Cannon, Wakefield

- 639. Classic and Romantic Music.** (4:4:0) F.Su. Prerequisites: Music 484, 485, or equivalent. Cannon, Wakefield
- 641. Special Lectures in Musicology.** (3:3:0) F.S.Su. Prerequisites: Music 484, 485, or equivalent. Graduate Faculty
- 652. History of Notation and Paleography.** (3:3:0) F. (Offered 1962-63 and alternate years) Prerequisites: Music 484, 485, 637, or equivalent. Cannon
- 656. Hymnology.** (2:2:0) S. Prerequisites: Music 484, 485, or equivalent. Weight
- 660p. Private Instruction.** (2:1:0) F.S.Su. Staff
Fifteen lessons per semester. Special fee.
- 663. Solo recital.** (2:0:6-10) F.S.Su. Cundick
Required of all graduate students minoring in applied music.
- 673. Form and Analysis.** (3:3:0) F.Su. Prerequisites: Music 491 and 572. Cundick
- 675. Materials of Modern Music.** (3:3:0) S.Su. Prerequisite: Music 673. Cundick, Gates
- 686. Pedagogy of Music Theory.** (3:3:0) F.Su. Prerequisite: Music 292. Nordgren
- 687, 688. Composition.** (3:3:0 ea.) F.S.Su. Prerequisite: Music 588 or equivalent. Cundick, Gates
- 693. Pro-Seminar in Music.** (2:2:0) S.Su. Prerequisites: Music 484, 485, 635, or equivalent, and approval of advisory committee. Cannon, Goodman, H. Laycock
Required of all candidates for graduate music degrees.
- 694. Independent Readings.** (2:0:6) F.S.Su. Prerequisite: Music 693 or equivalent. Cannon, Goodman, H. Laycock
- 695. Independent Readings.** (2:0:6) F.S.Su. Prerequisite: Music 693 or equivalent. Cannon, Goodman, H. Laycock
- 698. Composition for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee, based on evidence of ability in composition. Staff
To be submitted in lieu of a thesis by candidates for the master's degree majoring in composition.
- 699. Thesis for Master's Degree.** (2-6:Arr.:Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff
Candidates for the master's degree are required to show competence in writing and research before work is begun on the thesis.
- 753. Advanced Problems in Notation.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Music 652. Cannon
- 754. History of Musical Instruments.** (3:3:0) F. (Offered 1963-64 and alternate years) Prerequisites: Music 484, 485, or equivalent. Wakefield
- 785. Historical Aspects of Music Theory.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Music 292. Nordgren
- 791. Acoustics of Music.** (3:3:0) S. (Offered 1963-64 and alternate years) Prerequisite: Music 292. D. Monson
- 794. Seminar in Music.** (3:3:0) F.S. Prerequisites: Music 693 and approval of graduate advisory committee. Cannon, Goodman, H. Laycock
- 799. Dissertation for the Doctor of Philosophy Degree.** (Arr.) F.S.Su. Prerequisite: approval of graduate advisory committee. Staff
Candidates for the Doctor of Philosophy degree are required to show competence in writing and research before work is begun on the dissertation.

Physical Education for Men Physical Education for Women

Professors: Holbrook (chairman—women, 320 WG), Hart, Hartvigsen, Kimball.

Associate Professors: Geddes (chairman—men, 248 SFH), Watts.

Assistant Professors: Bangerter, Barney, Soffe.

Requirements

The Department of Physical Education offers the degree of Master of Arts or Master of Science. The graduate student in physical education has optional plans of study. Plan A is 30 semester hours of course work including a thesis. Plan B is 32 semester hours of course work, including a 3 hour course in research.

Under both A and B Plans the student must satisfy the following requirements:

1. Meet all basic general requirements for the master's degree as outlined by the Graduate School.
2. Receive official acceptance by the department chairman.
3. Have completed the baccalaureate degree with a major in physical education or its equivalent. All major undergraduate courses as required at Brigham Young University, or their equivalency, to be satisfied before the candidate will be accepted on a degree-seeking basis.
4. Successfully pass a general proficiency examination demonstrating competency and sound knowledge of subject matter as covered in the undergraduate degree. Results of the examination to be used by the advisory committee for guidance in the selection of courses and studies leading to the master's degree.
5. Successfully complete among others, the following department graduate courses: 600, 621, 691 and 692.

Plan A

A graduate student may work toward either the Master of Arts or Master of Science degree, depending upon his background of preparation and program of graduate study. The Master of Arts degree includes an 18 semester hours of foreign language requirement.

In addition to the general requirements listed in items one to five above, Plan A candidates will satisfy the following special requirements:

- (a) Complete a minimum of 30 semester hours of credit of which at least 15 semester hours exclusive of thesis, must be in the major field and at least 9 semester hours in a minor field approved by the major department.
- (b) Submit a thesis which reports research done under the direction of a committee composed of representatives from the major and minor fields. The thesis format must conform with standards for written work as recommended by the Graduate School.
- (c) Satisfactory performance in final oral examination on thesis and subject matter.

Plan B

A graduate student may work toward either the Master of Arts or Master of Science degree, depending upon his background of preparation and program of graduate study.

In addition to the general school and departmental requirements listed in items one to five above, Plan B candidates will satisfy the following special requirements:

- (a) No thesis is required. However, in connection with the basic departmental course 692, Research Methods in Physical Education, the student will select, organize and conduct an acceptable research project. The written report of the project must conform with the format for research writing as recommended by the Graduate School.
- (b) Complete not less than 32 semester hours of credit, approved by the advisory committee, of which at least 20 semester hours are to be in the major field and not less than 10 semester hours in the minor or 12 semester hours in two related fields.
- (c) Satisfactory performance in final oral examination on subject matter.

The responsibility of knowing and fulfilling school and department regulations and requirements for the master's degree rests with the student.

Graduate Courses

- 511. Administration of High School Athletics.** (2:2:0) F. Kimball
Education outcomes of high school athletics, their relationship to the intramural program, the physical education program, the school, and the community as a whole.
- 514. Organization and Administration of Intramural Sports.** (2:2:0) F. Soffe
History, present status, and objectives of the intramural movement procedures concerning organization, administration, and supervision of the intramural program.
- 542. Physical Inspection.** (1:1:0) S. Staff
Ways of recognizing abnormalities of body function by inspection and test procedures.
- 543. Problems in Athletic Conditioning and Injuries.** (2:1:2) F. Prerequisites: Physical Education 341, 446. Staff
- 570. Teaching Progression in Individual Sports.** (2:4:0) S. Prerequisite: skills classes or equivalent. Jacobson, Soffe
Materials, methods, and teaching progression in individual sports such as archery, badminton, bowling, golf, and tennis.
- 571. Teaching Progression in Team Sports—Men.** (2:1:2) F. Soffe
Materials, methods, and teaching progression in team sports such as basketball, football, soccer, softball, speedball, volleyball, and wrestling.
- 572. Teaching Progression in Team Sports.** (2:2:2) F. Hirst
Materials, methods, and teaching progression in team sports such as basketball, field hockey, soccer, softball, speedball, and volleyball.
- 574. Teaching Techniques in Gymnastics.** (2:1:2) F. Bangerter
- 588. Workshop in Modern Dance.** (2:2:6) Su. Prerequisite: competency in modern dance. Holbrook, Staff
Advanced techniques of supervision in improvisation, and accompaniment.
- 600. Curriculum Construction and Supervision in Physical Education.** (3:3:0) S. Hart
Curriculum construction for elementary, secondary, and college physical education with techniques of supervision in improving teacher-student learning situations.
- 603. Planning Facilities.** (2:2:0) S. Kimball
Basic planning for facilities for school and community physical education and recreation programs.
- 621. History and Philosophy.** (3:3:0) F. Holbrook
Beliefs and practices from early to modern times as related to physical education. Significance and implications of these in view of their effect upon modern educational thinking and cultural uses.

641. **Principles and Practices of Physical Reconditioning.** (2:2:0) F. Prerequisite: Zoology 264. Barney
660. **Measurement and Evaluation of Physical and Health Education.** (3:3:0) S. Prerequisite: Physical Education 464 or equivalent. Hart
673. **Physical Education in the Elementary School.** (3:3:0) Su. Holbrook
For the teacher, the principal, and the supervisor. Emphasis on objectives, interrelationships with the curriculum, and the content material used in accomplishing education results.
691. **Seminar in Administration and Public Relations.** (3:3:0) S. Hartvigsen
692. **Research Methods in Physical Education.** (3:3:0) F. Hart
694. **Seminar in Readings.** (2:2:0) F.S. Staff
696. **Seminar in Problems.** (1:1:0) S. Staff
698. **Field Project, Master's Degree.** (1-4:0:Arr.) F.S.Su. Staff
699. **Thesis for Master's Degree.** (1-6:0:Arr.) F.S.Su. Staff

These courses also count in physical education on approval of the student's advisory committee:

- Ed. Admin. 600. **Organization and Administration of Public Schools.** (3:3:0)
- Ed. Admin. 610. **Public School Finance.** (2:2:0)
- Ed. Admin. 631. **The Elementary School Principalship.** (2:2:0)
- Ed. Admin. 644. **Work of the Secondary School Principal.** (2:2:0)
- Ed. Admin. 673. **School Law.** (2:2:0)
- E.R.S. 541. **Advanced Statistics.** (2:2:0) Prerequisite: E.R.S. 540
- E.R.S. 550. **Introduction to Guidance Services.** (2:2:0)
- E.R.S. 601. **Advanced Educational Psychology.** (2:2:0)
- E.R.S. 620. **Guidance Testing and Diagnosis.** (3:3:0)
- Health 521. **Evaluation and Selection of School Health Material.** (2:2:0)
- Health 530. **First Aid Instructor.** (2:2:1)
- Health 552. **School Health Services.** (2:2:0)
- Health 560. **Stimulants and Depressants.** (2:2:0)
- Health 561. **Health of the Body Systems.** (3:3:0)
- Psychology 540. **Abnormal Psychology.** (3:3:2)
- Psychology 560. **Psychology of Learning.** (3:3:0)
- Psychology 628. **Psychology of the Physically Handicapped.** (2:2:0) Prerequisite: Psychology 378
- Recreation 503. **Administration of School and Community Camps.** (2:2:0)
- Recreation 505. **Administration of Community Recreation.** (3:3:0)
- Recreation 607. **The Conduct of Playgrounds.** (2:2:0)
- Recreation 609. **The Recreation Program.** (2:2:0)
- Sociology 512. **Sociology of Education.** (2:2:0)
- Sociology 542. **Social Movements.** (2:2:0)
- Sociology 551. **Sociology of Recreation.** (2:2:0)
- Sociology 560. **Family and Kinship.** (2:2:0)
- Sociology 686. **Problems in Race Relations.** (2:2:0)

Statistics 431. Statistical Methods. (3:3:0)

Statistics 531. Experimental Design. (2:2:0) Prerequisite: Statistics 431 or 521

Zoology 561. Advanced Vertebrate Anatomy. (3:1:4)

Zoology 662. Advanced Physiology. (2:1:2) Prerequisite: Zoology 365

Physics

Professors: Gardner (chairman, 287 ESC), Eastmond, Fletcher, R. Hales, W. Hales, A. Hill.

Associate Professors: Dixon, McNamara.

Assistant Professors: Ballif, Barnett, Decker, Dibble, Dudley, M. Hill, Nelson, Vanfleet.

The Physics Department offers the degrees of Master of Science, Master of Arts, and Doctor of Philosophy. The master's degree is often taken by those who intend to continue on for the Ph.D., but it also serves as a terminal degree for many who intend to go into industrial or governmental research or into teaching. The Ph.D. is awarded for a high degree of scholarly achievement in the subject matter of physics and in research. It is not granted simply upon completion of certain routine requirements. General requirements for these degrees are outlined by the Graduate School. Following are special requirements relating to the Department of Physics. The student who expects to continue into a Ph.D. program is advised to start on it as soon as he enters the Graduate School.

Master's Degree

The basic requirements for the master's degree in physics are the same as the general Graduate School requirements except that a student must pass a written proficiency examination before he will be permitted to take the oral examination. The minor requirements for the master's degree may be taken either outside the department or within the department where the student may satisfy a minor in mathematical physics by taking Math 617, 618 and Physics 621.

A student seeking only a master's degree with the intent of going into research or development work would find the courses listed in item B-2 under the Ph.D. requirements to be profitable. However, he may find it to his advantage to substitute some more specialized courses or some undergraduate courses where this can be done in conformity with the regulations of the Graduate School.

A student seeking the master's degree with the intent of going into secondary teaching should consider the following program:

Education (the 24 hours required for a teaching certificate)

Physics 551, 552

Physics 511

One additional year's course in physics. Recommended: Physics 527, 528; Physics 561, 562; Physics 671, 672; Physics 691, 692; or if the student has not taken these in the undergraduate program, Physics 341, 342; or 431, 471.

The courses in education would fulfill the minor requirements for this degree. Persons who have already fulfilled these education requirements as undergraduates should select some other minor field such as mathematics, chemistry, or mathematical physics (see discussion above). There are some possibilities for research for master's theses which may be done with equipment on loan from the University away from campus; e.g., cosmic ray studies, meteorological studies and astronomical studies. This should make it possible for a student to fulfill his education and physics requirements in one school year with the addition of one or two summers of study.

Doctor of Philosophy Degree

It is expected that the student will meet the general requirements of the Graduate School for advanced degrees. The following special requirements relate to a degree in physics:

A. Admission to Degree-Seeking Status

Study leading to an advanced degree in physics is contingent upon admission to the Graduate School. It is expected that the student shall have satisfactorily completed the following courses or their equivalent: Physics 211, 213, 315, 316, 321, 322, 341, 342, 431, 471, and Math 213, 314, 334, 541, 542. Upon approval by the student's advisory committee, some other advanced mathematics series may be substituted for Math 541 and 542. A student may remove any deficiencies by special examination or by registering for any of these courses at the outset of his graduate studies and earning "A" or "B" grades in them. Credit thus earned may not be applied toward meeting the requirements for the Ph.D. degree.

A written proficiency examination covering basic undergraduate physics will be given from time to time. A graduate student who intends to work toward the Ph.D. degree should take this examination before beginning his second year of graduate study.

B. Formal Course Work

1. A minimum of 52 hours in approved course work.
2. The following courses or their equivalents with grade of "A" or "B":
 - a. Mathematical Physics (Math 617, 618).
 - b. Elements of Quantum Theory (Physics 551), and The Atomic Nucleus (Physics 552).
 - c. Dynamics (Physics 621).
 - d. Mathematical Theory of Electricity and Magnetism (Physics 641, 642).
3. At least 9 hours in each of two of the following general fields with grade of "A" or "B".
 - a. **Quantum mechanics**
Courses which will satisfy this requirement are: Physics 651, 652, 751, 752; Chemistry 765, 766.
 - b. **Astrophysics**
Courses which will satisfy this requirement are: Physics 527, 528, 623, 625, 627, 628, 671.
 - c. **Thermodynamics and statistical mechanics**
Courses which will satisfy this requirement are: Physics 631, 632, 633, and, depending upon content, 711, 712, 713; Chemistry 661, 662, 761, 762.
 - d. **Nuclear Physics**
Courses which will satisfy this requirement are: Physics 655, 656, and, depending upon content, 711, 712, 713.
 - e. **Acoustics**
Courses which will satisfy this requirement are: Physics 561, 562, 563, 564; Electrical Engineering 581, 584, 585, 587.
 - f. **Atomic physics and spectroscopy**
Courses which will satisfy this requirement are: Physics 527, 528, 671, 672.
 - g. **Solid state physics**
Courses which will satisfy this requirement are: Physics 632, 681, 682.
4. Graduate Seminar, for which the student may receive 4 hours credit.

C. Comprehensive Examinations

Before the student is admitted to candidacy for the Ph.D. degree, he must pass a series of written examinations covering the courses in item B-2 and an

oral examination covering the two general fields selected under item B-3 which the student has completed. Normally these examinations will be taken toward the end of the second year.

D. Acceptance for Research

Before admission to candidacy, the student must be tentatively accepted as a research student by a member of the faculty of the physics department. The student may become acquainted with research opportunities available by attendance at seminars, lectures, discussions with faculty and other graduate students, etc.

E. Admission to Candidacy

The student is admitted to candidacy after (1) completing two years of graduate study, (2) passing the written proficiency examination, (3) passing the language examinations, (4) passing the comprehensive examinations, and (5) obtaining approval of a subject for the dissertation.

F. Dissertation

The student must present a written dissertation embodying the results of original research judged by his committee to be suitable in whole or in part for publication in a national journal.

G. Defense of Dissertation

The student must give an oral presentation and defense of the dissertation before his committee and others designated by his committee.

H. Fields Presently Available for Original Research

Acoustics	Magnetic resonance
Astrophysics	Micro-wave spectroscopy
Atomic physics	Nuclear physics
Gaseous electronics	Plasma physics
High pressure, high temperature phenomena	Solid state physics

Graduate Courses

- 511. Introduction to Theoretical Physics.** (3:3:0) Su. Prerequisites: Math 315, 316. Staff
Introduction to basic principles of physics with emphasis on their mathematical formulation. Applications principally in mechanics and electrodynamics.
- 513. Special Topics in Contemporary Physics.** (1-3:1-3:0) Arr. Prerequisite: consent of instructor. Staff
Various contemporary topics in physics are treated on sufficient demand.
- 527, 528. Introduction to Astrophysics.** (3:3:0 ea.) F.S. (Offered 1962-63 and alternate years) Staff
The physics of stellar atmospheres.
- 551. Elements of Quantum Theory.** (3:3:0) F. Prerequisites: Physics 315; Math 316. Staff
Basic course in modern theory of radiation and particle physics including elementary treatments of relativity theory, quantum mechanics with spectroscopic applications, quantum statistics, solids.
- 552. The Atomic Nucleus.** (3:3:0) S. Prerequisite: Physics 551. Staff
Basic course in nuclear physics including description of nuclear properties; scattering theory, nuclear reactions, elementary theory of the nucleus.

- 561, 562. Fundamentals of Acoustics.** (3:3:0 ea.) F.S. (Offered 1962-63 and alternate years) Staff
Vibrating systems, transmission phenomena, theory of acoustical radiators, and applications of acoustics.
- 563, 564. Acoustical Measurements.** (2:2:0 ea.) F.S. (Offered 1962-63 and alternate years) Prerequisite: completion of or concurrent registration in Physics 561 and 562. Staff
Selected experiments in acoustics.
- 591. Techniques in Experimental Physics.** (3:2:3) S. Staff
Modern methods in experimental physics with experience in basic shop and laboratory techniques applicable in research.
- 621. Dynamics.** (3:3:0) F. Prerequisite: Physics 322. Staff
- 623. Dynamics of Continuous Media.** (3:3:0) S. (Offered 1963-64 and alternate years) Prerequisite: Physics 621. Staff
- 625. Theory of Relativity.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Physics 621. Staff
- 627, 628. Advanced Topics in Astrophysics.** (3:3:0 ea.) F.S. (Offered 1963-64 and alternate years) Prerequisite: consent of instructor. McNamara
- 631. Advanced Thermodynamics and Kinetic Theory.** (3:3:0) F. (Offered 1963-64 and alternate years) Decker
- 632. Statistical Mechanics.** (3:3:0) S. (Offered 1963-64 and alternate years) Decker
- 641, 642. Mathematical Theory of Electricity and Magnetism.** (3:3:0 ea.) F.S. Prerequisite: Physics 342. Nelson
- 651, 652. Quantum Mechanics.** (3:3:0 ea.) F.S. (Offered 1962-63 and alternate years) Prerequisites: Physics 551, 621; Math 618. Gardner
- 655, 656. Nuclear Physics.** (3:3:0 ea.) F.S. (Offered 1963-64 and alternate years) Prerequisite: Physics 552. Dixon
- 671. Atomic Spectroscopy.** (3:2:3) F. (Offered 1963-64 and alternate years) Prerequisite: Physics 551 or consent of instructor. Eastmond
- 672. Molecular Spectroscopy.** (3:2:3) S. (Offered 1963-64 and alternate years) Prerequisite: Physics 671. Eastmond
- 681, 682. Modern Theory of the Solid State.** (3:3:0 ea.) F.S. (Offered 1962-63 and alternate years) Prerequisites: Physics 431, 551. Decker
- 691, 692. Seminar.** (1:1:0) F.S. Staff
- 697. Research for Master's Degree.** (Arr.) Arr. Staff
- 699. Thesis for Master's Degree.** (1-6:Arr.:Arr.) Arr. Staff
- 711, 712, 713. Advanced Topics in Physics.** (1-3:1-3:0) F.S. Prerequisite: consent of instructor. Staff
Course content varies from year to year. Special topics in theoretical and experimental physics are treated. In 1962-63 the subject matter will be in the field of Plasma Physics.
- 751, 752. Advanced Quantum Theory.** (3:3:0 ea.) F.S. (Offered 1963-64 and alternate years) Prerequisite: Physics 652 or consent of instructor. Dibble
- 791, 792. Seminar.** (1:1:0) F.S. Staff
- 797. Research for Ph.D. Degree.** (Arr.) Arr. Staff
- 799. Dissertation for Ph.D. Degree.** (Arr.) Arr. Staff

Political Science

Professor: Grow.

Associate Professors: Cannon (chairman, 358 McKay), Mabey, Melville, Reeder.

Assistant Professors: Hillam, Morrell.

Requirements

For full graduate standing in this field, a student must have completed approximately the equivalent of an undergraduate major.

A minor may be undertaken with somewhat less background, after consultation with the department.

Graduate Courses

- 501. City Planning.** (3:3:0) S. (m) Recommended: Political Science 330; Sociology 423; Geography 522. Staff
The basic problems and techniques involved in city planning.
- 502. Public Works and Safety Administration.** (4:4:0) F. (m) Recommended: Political Science 330; and two of the following: Sociology 380, 383, 386; Psychology 350. Staff
The basic factors underlying the efficient operation of police, fire, and public work departments. Sociological and psychological problems involved; organization patterns; public relations; budget; etc.
- 504. Budget and Fiscal Administration.** (3:3:0) F. (m) Recommended: Accounting 201. Staff
The principles involved in governmental budget and fiscal administration. Emphasis is given at national, state, and municipal levels.
- 510. International Project Administration.** (3:3:0) (Offered alternate years) Recommended: Political Science 110, 115, 330; History 120, 121.
The administration of the United States' programs abroad. Problems faced, living conditions, techniques of administration, approaches to education, etc.
- 532. Personnel Administration.** (2:2:0) F. (m) Staff
Treatment of processes, procedures, controls, and problems of personnel and fiscal administration in executive branches of federal, state, and local governments.
- 535. Municipal Government and Administration.** (3:3:0) S. (m) Grow
Growth, development, and organization of cities; relationship of cities to other governments; problems and activities of modern cities.
- 557. Government and History of Canada.** (3:3:0) S. (m) Grow
Growth and development of Canada and the operation of her government.
- 560. Government of Latin America.** (2:2:0) S. (m) Staff
Growth and political development of countries in the Latin-American area, with special reference to Argentina, Brazil, and Mexico.
- 565. International Organization.** (3:3:0) F. (m) Staff
History and structure of international organizations, with particular emphasis on the United Nations organization and its specialized agencies.
- 571. Development of American Foreign Policy.** (3:3:0) S. (m) Melville
Role of the United States in international affairs from colonial times to the present.

- 572. Soviet Foreign Policy.** (2:2:0) S. (m) Mabey, Morrell
Marxist-Leninist concepts of international politics and their practical application including such issues as the Communist International and "peaceful coexistence."
- 575. International Law.** (5:5:0) S. (m) Reeder
Nature and function of international law; recognition, succession, jurisdiction, rights, and immunities of states; nationality and jurisdiction over nationals.
- 580. International Relations of the Far East.** (3:3:0) S. (m) Recommended: Political Science 115. Hillam
International relations of Asia with emphasis on the problems of imperialism, colonialism, nationalism, and Communism.
- 590. Jurisprudence.** (3:3:0) S. (m) Staff
- 591. Anglo-American Legal Institutions.** (3:3:0) S. (m) Staff
Origins and development of common law and equity, the writ system, court systems, basic legal terms, and anatomy of a law suit.
Problem approach to ancient and modern legal philosophies, with special attention given the nature of justice and the relation of law to morality.
- 593. Administrative Law of the U.S.** (3:3:0) F. (m) Reeder
Legal setting for administrative bodies and judicial control of administrative action. Cases in administrative law read and discussed.
- 595. American Constitutional History.** (3:3:0) F. (m) Prerequisite: Political Science 110. Melville
History and development of the Constitution; study of its fundamental provisions, their interpretation and application in the functioning of the American system of government.
Staff
- 605. Roots of American Democracy.** (2:2:0) F. (Offered alternate years) (m) Staff
- 610. American Political Problems.** (2:2:0) F. (Offered alternate years) (m) Staff
- 630. Comparative Public Administration.** (3:3:0) S. (Offered alternate years) (m) Grow
- 650. Democratic Governments.** (2:2:0) F. (Offered alternate years) (m) Staff
- 651. Totalitarian Governments.** (2:2:0) S. (m) Staff
- 665. International Organization in the 20th Century.** (2:2:0) S. (m) Staff
- 670. International Relations in the 20th Century.** (2:2:0) S. (m) Staff
- 675. Modern International Law.** (2:2:0) S. (m) Reeder
- 690. Supreme Court of the United States.** (2:2:0) F. (m) Staff
- 696. Constitutional Law in the 20th Century.** (2:2:0) F. (m) Reeder
- 698. Directed Readings in Political Science.** (1-2:0:1-2) F.S. (m) Staff
- 699. Thesis for Master's Degree.** (2-4:0:2-4) F.S. (m) Staff

These courses also count in political science:

Geography 522. Urban Geography. (2:2:0)

Economics 575. Government Finance. (3:3:0)

Economics 576. Government and Business. (3:3:0)

601. Modern Political Philosophy. (2:2:0) S. (Offered alternate years) (m)

Psychology

Professors: Howell (chairman, 1230 SFLC), Allen, Robinson, Taylor.

Associate Professor: Hardy.

Assistant Professors: Bennion, Cooper, Daniels, Smith.

The Department of Psychology offers the following graduate programs leading to advanced degrees: master's degree in general psychology; master's degree for school psychologist, given in collaboration with the Department of Educational Research and Services; Ph.D. in clinical psychology; and a Ph.D. in general psychology.

Prospective graduate students are expected to acquaint themselves with all general regulations for advanced degrees as outlined by the Graduate School. Admittance to graduate work in psychology requires completion of the core courses for the undergraduate pre-professional major (general psychology, cognitive processes, motivation, elementary statistics, experimental psychology, abilities, and one seminar) or their equivalent. Before a student is admitted to degree-seeking status he may be required to further demonstrate his competence for graduate work by satisfactory performance on a battery of examinations to be prescribed by the department. All graduate students are required to complete satisfactorily Psychology 670 (Advanced Statistics) and 690 (Seminar: Research Problems).

As part of the training of graduate students, a psychological clinic is maintained by the Psychology Department for the diagnosis and treatment of behavioral and emotional disorders in children and adults. A limited number of selected individuals (other than University students) will be accepted depending on the training needs of the department.

For a graduate minor in psychology the student must have as undergraduate preparation Psychology 111, 311 (or 360 and 365), 370 or equivalent, and additional courses to make a total of twelve semester hours. In addition to these twelve hours, he must have a minimum of nine semester hours that will be counted as graduate credit.

Master's Degree

Requirements include: (1) completion of the required number of hours as stipulated by the general University requirements, including the specific courses required by the department for the school psychologist program, or those prescribed by the student's advisory committee in the general field; (2) a thesis which reports research done under the direction of a committee composed of representatives from the major and minor fields; (3) satisfactory performance in final oral examination on thesis and subject matter.

Doctor of Philosophy Degree with a Major in Clinical Psychology

Requirements for the degree of Doctor of Philosophy include: (1) completion of the required courses listed below (It is expected that the prerequisite courses will be taken without credit where this is necessary to make up deficiencies.); (2) a minimum of 14 hours in a minor field in a subject related to and supporting general knowledge in psychology, plus sufficient other hours in psychology (including required courses) or related fields to equal at least 74 hours; (3) comprehensive examinations covering major and minor fields. No student is admitted to these comprehensive examinations until he has demonstrated a general breadth of basic knowledge during the first two years of graduate work. Completion of these examinations is necessary before a person can be formally admitted to candidacy for a degree in clinical psychology (The examination in the major area need not be taken at the same time as that in the minor area); (4) a dissertation embodying the results of original research of professional caliber, done under the supervision of the advisory committee; (5) completion of one year of internship in a hospital or institution approved by the department.

Courses Required for a Doctor of Philosophy Degree with a Major in Clinical Psychology

General psychology (18 hours)

- 560. Learning Theory. (3:3:0)
- 585. Advanced Physiological Psychology. (3:3:0)
- 610. Systematic Psychology I: History and Contemporary Thought. (4:4:0)
- 611. Systematic Psychology II: Psychological Theory. (4:4:0)
- 720. Seminar: Clinical Problems of Genetic Psychology. (1:1:0)
- 552. (Soc) Personality: Culture and Society. (3:3:0)

Psychodynamics of Behavior (10 hours)

- 540. Abnormal Psychology. (3:3:2)
- 550. Personality Theory. (3:3:0)
- 651. Problems in Psychopathology. (2:2:0)
- 675. Experimental Psychodynamics. (2:1:4)

Diagnostic Methods (12 hours) Prerequisite: Psychology 378.

- 640. Individual Test Practice. (5:1:8)
- 740. Introduction to Projective Techniques. (2:2:0)
- 741. Rorschach Test Practice. (3:1:8)
- 743. Practicum: Diagnostic Testing. (2:0:6)

Psychotherapy (12 hours) Prerequisite: Psychology 540.

- 680. Introduction to Psychotherapy. (3:3:0)
- 780. Individual Psychotherapy: Practicum. (3:1:8)
- 781. Individual Psychotherapy: Practicum. (3:1:8)
- 782. Group Therapy: Theory and Practice. (3:1:8)
- or
- 783. Play Therapy: Theory and Practice. (3:3:3)

Research Methods (9 hours)

- 574. Advanced Experimental Psychology. (2:1:5)
- 670. Advanced Statistics I. (3:3:0)
- 671. Advanced Statistics II. (3:3:0)
- 690. Seminar: Research Problems. (1:1:0)
- 799. Dissertation (Arr.)

Doctor of Philosophy Degree with a Major in General Psychology

A program for the Ph.D. in general psychology with some concentration in the principal branches of the field is also offered by the Psychology Department. The purpose of this program is to furnish advanced training to students who are primarily interested in research, university teaching, and specialized application of psychology in areas other than the clinical field.

A candidate for this degree will choose a field of concentration from not more than two of the following branches: experimental psychology, physiological and comparative psychology, statistical analysis, psychological measurements, individual differences, learning social psychology, personality, and developmental psychology.

Courses Required for a Doctor of Philosophy Degree with a Major in General Psychology

General Psychology (17 hours)

- 552. (Soc) Personality: Culture and Society. (3:3:0)
- 560. Learning Theory. (3:3:0)
- 585. Physiological Psychology. (3:3:0)
- 610. Systematic Psychology I: History and Contemporary Thought. (4:4:0)
- 611. Systematic Psychology II: Psychological Theory. (4:4:0)

Psychodynamics of Behavior (10 hours)

- 540. Abnormal Psychology. (3:3:2)
- 550. Personality Theory. (3:3:0)

555. (Soc-Psych) Group Dynamics. (2:2:0)
 675. Experimental Psychodynamics. (2:1:4)

Research Methods (9 hours)

574. Advanced Experimental Psychology. (2:1:5)
 670. Advanced Statistics I. (3:3:0)
 671. Advanced Statistics II. (3:3:0)
 690. Seminar: Research Problems. (1:1:0)
 799. Dissertation. (Arr.)

Approximately 30 additional hours chosen by the chairman of the student's advisory committee befitting the particular specialization elected by the student. This list must be approved by the department staff upon the recommendation of the chairman of the committee.

Graduate Courses

510. **The Psychology of Aesthetics.** (2:2:0) S. Prerequisite: Psychology 111. Taylor
 The arts of perceptual stimuli; the nature of artistic creativity; psychological symbolism expressed in the arts; the artist as a person.
540. **Abnormal Psychology.** (3:3:2) S.Su. Prerequisite: Psychology 111 and consent of instructor. Allen, Howell
 Dynamics of maladjustment; implications for normal behavior; review of major and minor psychological disorders; modern therapeutic procedures; field work at Utah State Hospital.
550. **Personality Theory.** (3:3:0) F.S.Su. Prerequisite: Psychology 111, 450, and five additional hours in psychology. Allen, Howell, Smith, Taylor
 A critical review of the contemporary theories of personality that have been developed within the framework of major psychological systems.
555. **(Soc-Psych) Group Dynamics.** (2:2:0) F. Prerequisite: Sociology-Psychology 350. Hardy
 May be used for credit either in psychology or sociology, but not in both. Research and theories in group dynamics.
560. **Learning Theory.** (3:3:0) S. Prerequisites: Psychology 111, 460, and 5 additional hours in psychology. Allen, Taylor
 A critical review of current theories of learning and persistent problems.
574. **Advanced Experimental Psychology.** (2:1:5) S. Prerequisites: Psychology 111, 374, or equivalent. Allen
 Principles of instrumentation; varieties of experimental designs; nature of experimental controls. Gives experience in planning, conducting, and reporting original exploratory experiments.
580. **Comparative Psychology.** (3:3:0) F. Prerequisite: Psychology 111. Staff
 Survey of methods and results of research on animal learning, innate behavior, motivation, individual differences, social behavior, abnormal behavior; correlation of structure with function.
585. **Advanced Physiological Psychology.** (3:3:0) S. Prerequisite: Psychology 111. Staff
 Critical study of physiological processes and psychological functions; physiological mechanisms underlying behavioral processes, including sensation, emotion, sleep and activity, motivation, and learning.
598. **Independent Research.** (1-3:0:2-6) F.S. Staff
606. **Psychology of Music.** (3:3:0) S. Prerequisites: Psychology 111 and Physics 111 or equivalent. Taylor
 Designed for and required of graduate students majoring in music education. Critical examination of psychophysical functions in music; measurement of auditory thresholds; problems of absolute pitch; time judgments as related to music; nature and measurements of sensory-motor skills; measurement

of musical aptitude; personality and emotional factors as related to musical production and appreciation; recent applications of music in therapy; musical creativity as a psychological problem; representative research problems, methods and results.

610. **Systematic Psychology I: History and Contemporary Thought.** (4:4:0) F. Prerequisite: undergraduate core courses. Howell
611. **Systematic Psychology II: Psychological Theory.** (4:4:0) S. Prerequisite: Psychology 610. Howell, Taylor
626. **Mental Deficiency.** (2:2:0) F. Prerequisite: Psychology 378 or equivalent. Allen
627. **Gifted Children.** (1:1:0) S. Prerequisite: Psychology 378. Staff
628. **Psychology of the Physically Handicapped.** (2:2:0) F. Prerequisite: Psychology 378. Taylor
640. **Individual Test Practice.** (5:3:8) S. Prerequisite: Psychology 378. Bennion, Howell, Taylor
642. **Special Clinical Testing.** (2:0:6) S. Prerequisite: Psychology 640. Bennion
651. **Problems in Psychopathology.** (2:2:0) S. Prerequisites: Psychology 540 and consent of instructor. Bennion, Howell
655. **Psychosomatic Problems.** (2:2:0) F. Prerequisites: Psychology 540 and consent of instructor. Trunnell
670. **Advanced Statistics I.** (3:3:0) F. Prerequisite: Psychology 370. Staff
671. **Advanced Statistics II.** (3:3:0) S. Prerequisite: Psychology 670. Staff
675. **Experimental Psychodynamics.** (2:1:4) F. Prerequisites: undergraduate core courses and consent of instructor. Staff
680. **Introduction to Psychotherapy.** (3:3:0) S. Prerequisites: undergraduate core courses and consent of instructor. Bennion, Robinson
690. **Seminar: Research Problems.** (2:2:0) F. Staff
695. **Independent Readings.** (1-2:Arr.:Arr.) F.S.Su. Staff
699. **Thesis for Master's Degree.** (1-6:Arr.:Arr.) F.S.Su. Staff
740. **Introduction to Projective Techniques.** (2:2:0) F. Prerequisites: Psychology 550 and 640. Taylor
741. **Rorschach Test Practice.** (3:1:8) S. Prerequisite: Psychology 740. Bennion, Howell, Robinson
743. **Practicum: Diagnostic Testing.** (2:0:6) S. Prerequisite: Psychology 741. Bennion, Howell
747. **Internship in Clinical Testing.** (2-4:1:5-11) F.S.Su. Prerequisite: Psychology 743. Bennion, Howell
748. **Internship in Clinical Testing.** (2-4:1:5-11) F.S.Su. Prerequisite: Psychology 747. Bennion, Howell
780. **Individual Psychotherapy: Practicum.** (3:1:8) F.Su. Prerequisite: Psychology 680. Bennion, Howell
781. **Individual Psychotherapy: Practicum.** (3:1:8) S. Bennion, Howell
Continuation of Psychology 780.
782. **Group Therapy: Theory and Practice.** (3:1:8) S. Prerequisite: Psychology 680. Staff

783. **Play Therapy: Theory and Practice.** (3:3:3) S. Prerequisites: undergraduate core courses and consent of instructor. Taylor
790. **Seminar: Clinical Problems of Genetic Psychology.** (1:1:0) S. Prerequisite: consent of instructor. Taylor
791. **Seminar: Personality.** (1:1:0) F. Prerequisite: consent of instructor. Staff
792. **Seminar: Social Psychology.** (2:2:0) S. Prerequisite: consent of instructor, Sociology 350, or Psychology 350. Daniels, Smith
793. **Seminar: Learning.** (1:1:0) S. Prerequisite: consent of instructor. Staff
- 797, 798. **Independent Research.** (1-4:0:3-12) F.S. Prerequisite: consent of instructor. Staff
799. **Ph.D. Dissertation.** (Arr.) F.S.Su. Staff

Recreation

Professors: I. Heaton (chairman, 226 SFH), Hart, Hartvigsen, Kimball.
Associate Professor: Packer.

Requirements

An undergraduate major or equivalent in the field and acceptance by the department chairman is necessary for admission.

The master's degree in recreation may be completed by following either the A or B plan. If the student's advisory committee approves the B plan the candidate will take a preliminary and final oral and written examination, and 32 hours of course work approved by his advisory committee.

Upon approval of his advisory committee, a student may elect Option II in filling the minor requirement. A maximum of 12 credit hours of related courses which are approved by the advisory committee may be applied toward the degree.

Graduate Courses

502. **Camping Education.** (2:2:0) S.Su. Packer
503. **Administration of School and Community Camps.** (2:2:0) S. I. Heaton
505. **Administration of Community Recreation.** (3:3:0) S.Su. I. Heaton
507. **The Administration of Playgrounds and Community Centers.** (2:2:0) S.Su. A. Heaton
579. **Directed Leadership in Recreation.** (2-6:0:6-18) F.S.Su. Prerequisite: consent of department chairman. I. Heaton
583. **Workshop in Recreational Dance.** (2:2:0) S.Su. A. Heaton
609. **The Recreation Program.** (2:2:0) F.Su. I. Heaton
694. **Seminar in Readings.** (2:2:0) F.S.Su. Hartvigsen
695. **Seminar in Community-School Recreation.** (2:2:0) F.Su. I. Heaton
696. **Seminar in Problems in Recreation.** (1:1:0) S. I. Heaton
698. **Field Project.** (1-4:2-5:0) F.S.Su. I. Heaton
699. **Thesis for Master's Degree.** (1-6:1-5:0) F.S.Su. I. Heaton

These courses also count in recreation:

- Art 665. **Advanced Ceramics.** (1-3:Arr.:Arr.)

- Art 666. Advanced Metal and Jewelry Design. (1-3:Arr.:Arr.)
- Dramatic Arts 571. Creative Dramatics. (2:2:1)
- Dramatic Arts 572. Children's Theatre. (2:2:1)
- Instruction 605. Development of Instructional Materials (Audio-Visual Aids). (2:2:1)
- Instruction 626. Arts and Crafts for the Handicapped. (2:2:1)
- Instruction 624. Advanced Arts and Crafts for Elementary Teachers. (2:2:1)
- Journalism 561. Public Relations. (3:3:0)
- Physical Education 514. Organization and Administration of Intramural Sports. (2:2:0)
- Physical Education 570. Teaching Progression in Individual Sports. (2:4:0)
- Physical Education 571. Teaching Progression in Team Sports—Men. (2:1:2)
- Political Science 532. Personnel Administration. (2:2:0)
- Political Science 535. Municipal Government and Administration. (3:3:0)
- Psychology 540. Abnormal Psychology. (3:3:2)
- Psychology 555. (Soc-Psych) Group Dynamics. (2:2:0)
- Sociology 551. Sociology of Recreation. (2:2:0)
- Sociology 555. (Soc-Psych) Group Dynamics. (2:2:0)
- Speech 527. Storytelling. (2:2:0)
- Instruction 663. Directing Out-of-Class Activities in the Secondary Schools. (2:2:0)
- Physical Education 603. Planning Facilities. (2:2:0)
- Physical Education 691. Seminar in Administration and Public Relations. (3:3:0)
- Physical Education 692. Research Methods in Physical Education. (3:3:0)
- Physical Education 694. Seminar in Readings. (2:2:0)
- Physical Education 696. Seminar in Problems. (1:1:0)
- Psychology 628. Psychology of the Physically Handicapped. (2:2:0)
- Sociology 686. Problems in Race Relations. (2:2:0)

Religious Education

Professor: Berrett.

Associate Professor: Riddle (chairman, 120 JS).

The Department of Religious Education offers training in a major leading to the Master of Religious Education degree and in a minor to support programs in other departments. Work is also offered through this department which can constitute a minor in connection with the doctorate programs of the College of Education. A statement of detailed requirements and procedures of the graduate programs in religion may be obtained upon request from the chairman of the Department of Religious Education.

Each graduate student must fill all general regulations and requirements for advanced degrees as outlined by the Graduate School. **The responsibility of knowing and fulfilling these regulations and requirements rests with the student.**

Master's Degree

After acceptance on a degree-seeking basis, the student must fulfill the following requirements under the direction of his advisory committee:

- A. Attain a minimum of 30 semester hours of credit in approved courses with a grade of "B" or better. This 30 hours may not include any thesis credit. Majors in the field of religious education must fill the following requirements:

One hour from the following courses:

Religious Education 572 (1), 573 (1), (Theology), or Theology 530 (2)

The following course:

Religious Education 670 (2), (Survey of Religious Education)

Two hours from the following courses:

Religious Education 570 (2), 571 (2), 673 (2), 674 (2), (methods)
Religious Education 671 (2), 672 (2), 675 (2), 676 (2), (curriculum)

Six hours from the following courses:

Religious Education 661 (2), 662 (2), 663 (2), 664 (2), (subject matter). Competence in the subject matter of these courses is required. The candidate must satisfy the department that he is prepared before he may register for any of these courses.

One course from the following:

E.R.S. 620 (3), (Introduction to Counseling)
History and Philosophy of Religion 581 (2), (Philosophical Analysis)
History and Philosophy of Religion 583 (2), (Philosophy of Religion)

- B. Write an acceptable thesis or conduct an appropriate field project under faculty supervision.
- C. Complete in a satisfactory manner an oral examination which will probe his mastery of the subject matter of his major and minor areas and the soundness of his thesis or field project.

The student may obtain 10 credit hours in the minor field of his choice if he is a certified teacher. If he is not certified, the minor must be taken in education. The remaining hours of credit required may be taken to suit the needs of the particular student, as approved by his advisory committee.

Minor in Religious Education

The master's candidate for a minor in the field of Religious Education will be assigned an adviser to represent this department and must fill the following requirements:

- A. The student must complete 10 hours of course work as follows:

Four hours from the following courses:

Religious Education 570 (2), 571 (2), 572 (1), 573 (1), 574 (1),
671 (2), 672 (2), 673 (2), 674 (2), 676 (2).

Four hours from the following courses:

Religious Education 661 (2), 662 (2), 663 (2), 664 (2).

Two hours from the following courses:

Religious Education 670 (2), E.R.S. 620 (3), History and Philosophy of Religion 581 (2), 583 (2).

Graduate Courses

- 570, 571. **Methods of Teaching Religion in the Secondary Schools.** (2:5:0 ea.)
Su. Not offered 1963. Berrett, Staff
- 572, 573, 574. **Lectures in Theology.** (1:4:0 ea.) Not offered 1963.
Berrett, Staff
661. **Problems of Old Testament Teaching.** (2:2:0) F. (2:5:0) Su. Staff
662. **Problems of New Testament Teaching.** (2:2:0) S. (2:5:0) Su. Turner
663. **Problems of L.D.S. Church History Teaching.** (2:2:0) F. (2:5:0) Su. Clark
664. **Problems of Book of Mormon Teaching.** (2:2:0) F. (2:5:0) S.Su. Ludlow

670. Survey of Religious Education. (2:2:0) F.S. (2:5:0) Su. Belnap
- 671, 672. Curriculum of Religion in Secondary Schools. (2:5:0 ea.) Su. Not offered 1963. Berrett, Staff
- 673, 674. Methods of Teaching Religion in College. (2:5:0 ea.) Su. Not offered 1963. Berrett, Staff
- 675, 676. Teaching Religion in Colleges. (2:5:0 ea.) Su. Not offered 1963. Berrett, Staff
677. Problems of Teaching Religion. (1:3:0) Su. Not offered 1963. Berrett, Staff
680. Philosophic Problems and Religious Instruction. (1:3:0) Su. Madsen, Riddle, Yarn
699. Thesis for Master's Degree. (1-6:1-6:0) F.S.Su. Staff

These courses also count in religious education:

Theology 530. L.D.S. Theology. (2:2:0)

E.R.S. 620. Introduction to Counseling Theory and Practice. (3:3:0)

History and Philosophy of Religion 581. Seminar: Philosophical Analysis. (2:2:0)

Sociology and Anthropology

Professors: Symons (chairman, 1216A SFLC), Ballif, Bradford, Smith.

Associate Professors: Christiansen, Dyer, Empey, Vernon.

Assistant Professors: Payne, Peterson.

Requirements

The Department of Sociology and Anthropology offers training for the master's degree and the Doctor of Philosophy degree. It is expected that graduate students will acquaint themselves with all the general regulations for advanced degrees as outlined by the Graduate School.

Master's Degree

The requirements for the master's degree in sociology include, of course, the general requirements of the Graduate School.

Admission to the master's degree program requires a minimum of 15 semester hours in sociology or its equivalent, including introductory sociology, sociological theory, methods of research, and statistics, and the passing of a written **screening examination** involving the following fields: sociological theory, statistics, research methods, and social organization-disorganization. Screening examinations must be taken during the sixth week of the first semester of residence. The screening examinations serve two purposes:

1. They help to discover those students whose ineptness in the field is such that they should be advised not to continue.
2. They reveal strengths and weaknesses of a given student so that the most meaningful program can be arranged for him.

The week following the examinations the student will be notified of his status by his chairman (department head if none other appointed). If the student's performance on the tests is such that he is permitted to continue toward his degree, the department reserves the right to examine him again at a later date in the areas in which his test performance was below standard.

Doctor of Philosophy Degree

Students intending to enter the doctoral program in sociology should obtain from the department chairman a complete statement of rules and procedures. In addition to the general requirements of the Graduate School, a student working toward a doctorate in sociology must fulfill the following specific requirements:

1. **Requirements for Admission.** For admission to the doctoral program in sociology, the students must furnish evidence of having received a master's degree or its equivalent in sociology from an accredited university. In addition, the student must pass **screening examinations** in the following areas: sociological theory, statistics, research methods, and social disorganization. Screening examinations must be taken during the sixth week of the first semester of residence. The department may then prescribe remedial work or other requirements as a condition for admission. The student must complete such work with a grade of "B" or better.

2. **Student's Advisory Committee.** The members of the advisory committee are nominated by the student in consultation with the department chairman and with the approval of the dean of the Graduate School. Four men from the department plus one from outside the department comprise the advisory committee. If the student decides to have one minor outside the department, the fifth member must be from the department. If the student has both minors within the department, the fifth member is selected from a department decided upon by the other four committee members. The chairman of the committee must be a representative of the department and must be competent in the field in which the dissertation is to be written.

3. **Major and Minor Fields.** The student must have two major fields, one of which must be research methods. A major field is a field of study in which the student specializes both in respect to teaching and research. It is presumably the field in which the dissertation is to be written and upon which the professional career is to be based.

The student must have two minor fields, one of which may be selected from another department in lieu of one of the minor fields in sociology. A minor field is construed as a field of study in which the student may teach and/or conduct research creditably. It is not the substantive field, however, in which his competence is most highly developed.

The major fields must be selected from the following: deviant behavior, research methods, and social organizations.

A student may elect to have a minor in a field not listed above. To do so he must submit a proposed program of study to his advisory committee at least 12 months in advance of the comprehensive examinations. This committee, with the approval of the members of the department, may authorize an alternate minor field in sociology.

4. **Comprehensive Examinations.** The student must pass comprehensive examinations after the completion of prescribed course work and at least one year prior to the granting of the degree. Unless a minor is selected in another department, the examinations are in four of the above fields of sociology, two of which must be (a) sociological theory and (b) research methods.

Requirements for a Minor in Sociology

A student working toward a master's degree completes the departmental requirements for a minor in sociology by satisfactorily completing Sociology 604 plus graduate semester hours in areas related to his major specialization in his field as approved by his advisory committee, a member of which is from the Department of Sociology and Anthropology.

A student working toward the doctoral degree with a major in another department and with a minor in sociology takes a preliminary screening examination, after which a committee member from the Department of Sociology and Anthropology, with the approval of the other members of the department, outlines a program in accordance with the needs of the student.

Groupings of courses are as follows:

Demography (minor only)	Rural Sociology (minor only)	Sociological Theory (major or minor)
620	523	604
693	693	
Deviant Behavior (major or minor)	Social Psychology (minor only)	Special Readings and Research (major or minor)
591	542	594
670	552	595
686	555	596
Family (minor only)	623	796
560	792	797
660		
Research Methods (major)	Social Organizations (major or minor)	Other Courses (minor only)
524	512	543
561	516	551
597	570	
701	626	Thesis (major)
	696	699
	791	799

Graduate Courses

- 512. Sociology of Education.** (2:2:0) S. Smith
Analyzes principles of sociology of education and their implication for theory and practice of school administration, curricula, and methods of instruction.
- 516. Sociology of Religion.** (2:2:0) F. Vernon
Analyzes influences of social factors in development of various religious systems.
- 524. Advanced Social Statistics.** (3:3:0) F. Prerequisite: Sociology 111. Christiansen
Advanced course designed for those who intend to do research or continue in graduate work.
- 542. Social Movements.** (2:2:0) S. Payne
Discuss social aspects of various movements from Adam Smith to John Dewey with special emphasis on social reform movements in the United States.
- 543. Social Legislation.** (2:2:0) S. (Offered 1963-64 and alternate years) Ballif
Basic problems and techniques of social legislation. Analyzes various systems now in operation.
- 551. Sociology of Recreation.** (2:2:0) S.Su. Payne
Treats relations of recreational interests to growth, group behavior, and social maladjustments. Emphasizes basic theories of recreative activities.
- 552. Personality: Culture and Society.** (3:3:0) F. Prerequisite: Sociology 111 or Psychology 111. Christiansen, Dyer
- 555. (Soc-Psych) Group Dynamics.** (2:2:0) S. Prerequisite: Sociology 350. Dyer
Analyzes research and theories of group dynamics.
- 560. Family and Kinship.** (2:2:0) S. (Offered 1963-64 and alternate years) Bradford, Christiansen
Emphasizes the family in several different societies and problems created by various family systems.
- 561. Contemporary Sociological Research.** (2:2:0) S. (Offered 1962-63 and alternate years) Peterson

- 570. Class, Status, and Power.** (2:2:0) F. (Offered 1963-64 and alternate years)
Prerequisite: Sociology 111. Peterson
Analyzes the major status and class systems in various societies. Also discusses power relations in such systems.
- 591. Seminar in Crime Causation and Treatment.** (2:2:0) F.Su. Prerequisites: Sociology 111, 380. Smith, Symons
Considers the major causes of crime and analyzes prevalent theory and techniques of treatment criminals.
- 595. Directed Readings.** (1-3:0:2-6) F.S.Su. Staff
Readings in special areas.
- 596. Directed Readings.** (1-3:0:2-6) F.S.Su. Staff
Readings in special areas.
- 597. Advanced Research Methods.** (3:3:0) S. Prerequisite: Sociology 497. Peterson
Analyzes methods used in investigation of sociological data. Field projects give the student actual experience in research.
- 604. Seminar in Sociological Theory.** (2:2:0) S.Su. Prerequisites: Sociology 404 and 405. Bradford, Dyer
An advanced course in sociological theory.
- 612. Problems in Rural Society.** (3:2:1) F. (Offered 1962-63 and alternate years) Prerequisite: Sociology 423, or consent of instructor. Christiansen
Field type training, with on-the-job contacts with county agents, et. al. Findings from these contacts will be the class room material.
- 620. Problems in Demography.** (3:3:0) F. (Offered 1962-63 and alternate years) Prerequisite: Sociology 420, or consent of instructor. Staff
Current population problems of local, state, national, and international significance will be considered. Complications involved in local and state trends will receive special attention.
- 623. Demographic Analysis.** (3:3:0) S. (Offered 1963-64 and alternate years) Prerequisite: Sociology 420 and 620. Staff
The discipline of demography, with its special methods and procedures will be analyzed. Major current research in the field will receive careful coverage.
- 626. Contemporary Urban Social Structure.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Sociology 426, or consent of instructor. Smith
This course will be a research oriented examination of social forces in contemporary urban life which influence patterns of human interaction.
- 660. Familial Role Structure.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Sociology 403. Bradford
Analysis of the various roles in the family, with their attendant characteristics and problems, in various societies, but particularly in the United States.
- 670. Social Structure of the Mental Hospital.** (3:1:4) F. Prerequisite: consent of instructor. Vernon
In cooperation with the Utah State Hospital, students participate in an analysis of the relationship between social structure of the hospital and patient behavior.
- 686. Problems in Race Relations.** (2:2:0) F. Ballif
Considers significant problems of a specialized nature in the field of race relations.
- 693. A Study of Contemporary Rural Sociological Research.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisites: Sociology 423 and 612. Christiansen
Basic analysis of principles of rural sociology. Also review of leading re-

search in the field. Research designs will be planned and some limited research done.

- 694. Directed Research.** (1-3:0:2-6) F.S.Su. Staff
Research in special areas.
- 696. Seminar in Industrial Sociology.** (3:3:0) S. (Offered 1962-63 and alternate years) Prerequisite: Sociology 446. Dyer
Designed to give added insight by careful attention to current trends in industry, labor-management developments, government, participation, etc.
- 699. Thesis for Master's Degree.** (1-4:Arr.) F.S.Su. Staff
- 701. Advanced Statistical Methods.** (2:2:0) S. (Offered 1963-64 and alternate years) Prerequisites: Sociology 320, 524. Christiansen, Peterson
Consideration of advanced statistical techniques such as scalogram analysis, factor analysis, and latent structure analysis.
- 791. Seminar: Social Organization.** (2:2:0) F. Prerequisites: Sociology 111, 405. Dyer
Comprehensive examination of major theories of organization with emphasis upon theory construction.
- 792. Seminar: Social Psychology.** (2:2:0) S. Prerequisites: consent of instructor; Sociology 350. Vernon
Designed to give advanced work to graduate students. Gives special emphasis to group processes and socialization.
- 796. Special Research Problems.** (1-3:0:2-6) F.S.Su. Staff
- 797. Special Research Problems.** (1-3:0:2-6) F.S.Su. Staff
- 799. Dissertation for Ph.D.** (Arr.) F.S.Su. Staff

Statistics

Professor: Nielson (chairman, 348 JK).

Associate Professors: Carter, Gardner.

A graduate degree is not currently offered in statistics, but a graduate minor may be taken in this field.

Graduate Courses

- 521, 522. Theory of Statistics.** (3:3:0 ea.) F.S Prerequisite: Math 213 or concurrent registration; recommended: Statistics 221 or 321. Nielson
- 531. Experimental Design.** (3:3:0) S. Prerequisite: Statistics 221, 321 or 521; recommended: Statistics 331. Carter
- 541. Advanced Probability.** (3:3:0) S. Prerequisite: Math 213, Statistics 341 or 521. Nielson

These courses also count in statistics:

- Accounting 556. Electronic Computer Programming.** (3:3:0)
- Accounting 557. Advanced Computer Programming.** (2:2:0)
- Animal Husbandry 601. Experimental Techniques and Design.** (2:2:0)
- Educational Research and Services 541. Advanced Statistics.** (2:2:0)
- Psychology 670, 671. Advanced Statistics I and II...** (2:2:0)
- Sociology 524. Advanced Statistics.** (3:3:0)
- Sociology 701. Advanced Statistical Methods.** (2:2:0)

Zoology and Entomology

Professors: Beck (chairman, 365 B), Hayward, V. Tanner.

Associate Professors: Allen, Chapman, Frost, W. Tanner*.

Assistant Professors: Allred, Murphy, Wood.

Requirements for Graduate Degrees

A prospective graduate major is expected to satisfy all the general requirements for advanced degrees outlined by the Graduate School. Before or during the first semester the student is officially admitted to graduate study in the department, the departmental graduate standards committee will administer an examination designed to explore his academic background and aptitude. Recommendations to assure adequate depth and breadth of training based on an evaluation of this examination and his undergraduate record of courses will be used by the advisory committee in planning the program of graduate study. Deviations from these recommendations must be approved by the graduate standards committee. Prior to the selection and approval of the advisory committee, the graduate standards committee will direct the student's program. The responsibility for complying with all regulations of the Graduate School and of the department rests with the student.

The Department of Zoology and Entomology offers work leading toward the master's degree and the Doctor of Philosophy degree in zoology and in entomology. A student may major in either of these fields. Either one or two minors may be selected, and it is recommended that at least one of the minors be chosen from a department other than zoology and entomology.

A student may do research in specific areas in zoology or in entomology. In zoology, advanced training and research is available in ecology, embryology, genetics, herpetology, histology, ichthyology, mammalogy, invertebrate zoology, ornithology, parasitology, physiology, radiation biology, and vertebrate anatomy. In entomology, advanced training and research may be pursued in general entomology, taxonomy, morphology, ecology, and medical entomology.

Master's Degree

Master of Science and Master of Arts degrees are offered by the Department of Zoology and Entomology. The general requirements indicated above apply to students seeking these degrees. Master's degree candidates are expected to take Zoology 696 and 697 in addition to other courses specified by their special committee.

Doctor of Philosophy Degree

Required courses for each candidate for this degree include the following: Zoology 510, 540, 555, 578, 610, 680, 696, and 697. A comprehensive preliminary examination, oral and written, covering all areas of basic zoology or entomology with emphasis on the major and minor fields must be successfully completed before advancement to candidacy. This examination normally is taken approximately one academic year prior to granting of the degree. The candidate is expected to spend a summer term or equivalent away from Brigham Young University at an approved laboratory or field station.

Graduate Courses

- | | |
|---|--------|
| 510. Zoological Literature. (2:1:2) S. | Wood |
| An introduction to the literature of zoology designed to prepare the student for research and thesis writing. | |
| 524. Acarology. (2:0:6) F. (Offered 1962-63 and alternate years) Prerequisite: Zoology 421. | Allred |
| 531. Insect Physiology. (2:1:2) S. (Offered alternate years) | Wood |

533. **Field Entomology.** (2:0:4) Su. Prerequisite: consent of instructor.
Beck, Wood
538. **Immature Insects.** (2:0:4) S.
V. Tanner
540. **Aquatic Ecology.** (3:2:3) F. Prerequisites: Zoology 451 or Botany 450.
Murphy
555. **Principles of Zoogeography.** (2:2:0) F.
W. Tanner
561. **Advanced Vertebrate Anatomy.** (3:1:4) F.S. Prerequisite: Zoology 363.
Chapman, W. Tanner
573. **Experimental Embryology.** (2:1:3) S. (Offered alternate years) Prerequisite: Zoology 373.
Allen
576. **Advanced Genetics.** (2:2:0) F. (Offered 1962-63 and alternate years) Prerequisite: Zoology 376 or Botany 376.
Allen
578. **Radiation Biology.** (2:2:0) F. (Offered alternate years) Prerequisites: Chemistry 112; Physics 202; Zoology 365.
Allen
579. **Radiation Biology Laboratory.** (1:0:3) F. (Offered alternate years) Prerequisite: concurrent registration in Zoology 578.
Allen
591. **Special Problems in Zoology.** (1-2:Arr.:Arr.) F.S.Su.
Staff
610. **Systematic Zoology.** (2:1:2) F.
V. Tanner
612. **Advanced Invertebrate Zoology.** (2:0:4) F. Prerequisite: Zoology 540. Beck
625. **Advanced Medical Entomology.** (2:0:4) S. Prerequisites: Zoology 332, 346, 347.
Beck
628. **Ecology of Parasitic Arthropods.** (2:1:3) S. (Offered 1963-64 and alternate years) Prerequisites: Zoology 433, 451.
Allred
639. **History of Entomology.** (1:1:0) F.
V. Tanner
643. **Advanced Ichthyology.** (2:1:2) F. (Offered alternate years) Prerequisite: Zoology 343.
V. Tanner
645. **Advanced Herpetology.** (2:1:2) S. (Offered alternate years) Prerequisite: Zoology 345.
W. Tanner
646. **Advanced Topics in Ornithology and Mammalogy.** (2:2:0) F. (Offered 1962-63 and alternate years) Prerequisites: Zoology 346, 347.
Hayward
650. **Animal Communities.** (2:2:0) S. (Offered alternate years) Prerequisite: Zoology 451.
Murphy
662. **Advanced Physiology.** (2:1:2) F.S. Prerequisite: Zoology 365.
Staff
673. **Advanced Embryology.** (2:2:0) S. (Offered 1962-63 and alternate years)
Allen
680. **Theoretical Zoology.** (2:2:0) S. Prerequisite: consent of instructor.
W. Tanner
691. **Research.** (1-4:Arr.:Arr.) F.S.Su.
Staff
- 696, 697. **Graduate Seminar.** (1:1:0 ea.) F.S.
Staff
699. **Thesis for Master's Degree.** (2-4:Arr.:Arr.) F.S.Su.
Staff
797. **Research.** (2-4:Arr.:Arr.) F.S.Su.
Staff
799. **Dissertation for Ph.D. Degree.** (Arr.) F.S.Su.
Staff

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